The Builder.

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The Edinburgh Library Competition.

THE exhibition of the competitive designs for the Edinburgh Public Library, in the Galleries of the Royal Scottish Academy, has been an event of some interest, both from the number and general quality of the designs exhibited, and from the public attention which the exhibition has excited in Edinburgh.

The site is a somewhat peculiar one. It is a plot of ground to the westward of George IV. Bridge, but on the level of the Cowgate, which runs east and west under the bridge and at right angles to it. The main entrance and the main floor would almost necessarily be on the Bridge level, but the foundation of the building itself is two or three stories below this level. The site is thus a very suggestive one for bold and picturesque treatment. The natural way to treat it would seem to be as a building with more or less ornate stories at and above the level of the Bridge, with a lofty but plain basement rising from the narrower street below. A strong element of architectural effect and contrast is thus almost provided for the architects, though it is noticeable that few of the competitors have accepted this natural suggestion from the nature of the site, and hardly any of those have treated it with the boldness and thoroughness of which the site is susceptible, though there are several very fine designs among the number.

The main requirements are a lending library, a general reading-room and news-room, and a reference library, with subsidiary smaller rooms for ladies and juvenile readers, more or less separated from the main rooms, but in connexion with them. It seems an almost necessary consequence that the lending library, which is likely to have the most business, should be on the entrance level, and all but one or two competitors have treated it so; and the position of the reference library as the upper floor and the architecturally principal room has been accepted by every one. We will comment on the designs, as far as space allows, in the order of hanging; only omitting altogether some half dozen or so which are hardly worth consideration on their merits.

"Mark."—This, which comes first in the order of hanging, is one of the few Gothic designs in the room. The lending library and reference library over are placed in a block on the left; the entrance to the lending library, through a porch and vestibule and then by a door to the left, is hardly sufficiently direct; and the whole of the public traffic to this and to the reference library above and the news-room below, passes over one not very large landing of the staircase,—not a very desirable arrangement. The design, in a heavy type of Gothic, has not much to recommend it, and the two towers on either side of the central gable do not arise out of any feature in the plan. The reference library would be deficient in light for readers.

"Progress."—Also a Gothic design, with suggestions of Scotch castellated Gothic, mingled with inspirations from Mr. Waterhouse. It is amusing to observe, since this eminent architect became so much accepted as a competition assessor, the practical appeals that are made in competition designs to what are supposed to be his architectural sympathies. This design has more refinement than the last-named, however, as far as the external architecture is concerned, but that is all. The plan is so full of absurdities as to arrangement and lighting that it is unnecessary to discuss it.

"Pro Bono Publico" shows a good deal of merit in plan. The large rooms are in a block parallel to Cowgate. The public access to the lending library is well arranged for the public, but badly for the attendants, who are too far from the books, and would be jostling each other in and out of the narrow door. The external design is of "Queen Anne" type, unpretending, and not unsuitable, and might look more attractive in a better drawing than in the hard mechanical perspective exhibited. Some supplementary light is obtained for the reference library through the side panels of the wagon ceiling; but this being a top floor, it might have been more effectively managed.

"Aldus" places the main block along George IV. Bridge, where it shows as a low block with two projecting wings, the sky-line entirely unbroken; there is some pretty treatment of the front wall in detail, but a total absence of architectural effectiveness as a mass: the section is better than the plans, and shows good arrangements for lighting the upper reading-rooms; the plan has a want of method, and is cut up with side passages and corridors in an awkward manner. The Cowgate façade is an absurd jumble.

"Triumphant Democracy."—This is one of the best of the designs. The author bestows a wider area on his library block than most of the designers, placing it at right angles to George IV. Bridge, and he has separate entrances for men and women at the opposite sides of his front, not, as in another case, two doors labelled "ladies" and "gentlemen," opening into the same small vestibule, but a completely separate door and a separate staircase for ladies. The front has two slightly projecting wings with an area between, and the front space between these wings on the entrance-level is occupied by a large borrowers' lobby or hall, with the delivery counter along the inner side, the ladies' and gentlemen's lobbies opening into opposite ends of this hall. Above this hall, on the next floor, is the ladies' room, reached by its own staircase, which also gives them access by a separate door to the reference library on that floor. The reference library, of which one interior perspective is given, is a fine and effective room; the bookcase blocks, at right-angles to the wall, are made, so to speak, part of the architectural design, instead of being merely furniture; each block is terminated by a wide pilaster towards the room, connected longitudinally by a series of arches springing from corbels, and matching the arches of the side windows; the main cornice of the room runs along the inner edge of the projecting bays, which form a series of deep arched recesses. Ample light is provided from the large cove of the ceiling, entirely pierced with windows, with curved ribs between them, leaving a flat centre boldly treated in large panels. For the convenience of setting out the main ceiling ribs, they are made to spring from corbels on the keys of the arches, instead of from the intermediate pilasters, which are the real piers of the design; this has rather an odd effect, but it gets over the difficulty of treating the cove at the angles. For ventilation, the author proposes mechanical propulsion of warmed air by a Blackman propeller. The exterior is a dignified Italian design, in two stories, rusticated piers below and pilasters above; the wings would be much better with some kind of finish above the balustrade line, but considerations of cost probably prevented this. The lending library is a large room with a row of square piers and four-way bracket capitals forming an aisle on each side, under the piers of the reference library above; the room is left very empty in the perspective, probably to show it better, but we presume the central area is supposed to be available for bookcases.

"Bibliothèque."—This, again, is a different plan in method from the majority, the author occupying a great proportion of his area with the library rooms, arranged on a Greek cross plan, with staircases and subsidiary rooms at the angles. The main entrance is into a loggia across the front, with the main staircase occupying a large square pavilion to the right, and the staircase down to the general reading-room on the left; the public enter the lending library by a door immediately opposite the street entrance, and have the whole centre space of the Greek cross to manœuvre in, with counter running all round, and the book-cases

in the arms of the cross. This gives very long counter space, and keeps the attendants close to the book-cases. The plan does not commend itself so much in the newspaper room below, where there is necessarily a deficiency of light in the centre space, the windows being all in the four bays of the room.* In the reference library at the top, ample light is given by a glass dome over the central space. The ladies' room is got over the ground-floor corridor, a mezzanine between them affording a board-room, and on the same mezzanine are lavatories for the ladies' room and the librarian, cleverly got in and connected to the rooms by two small circular staircases. The style is Jacobean, or what we may most intelligibly denominate as "The prevailing style" at present. It looks as if it were meant to be carried out in terra cotta. It is shown in a very nicely sketched pen perspective, with the George IV. Bridge partly removed or cut through in section, in order to show the Cowgate elevation from ground to cornice. The interiors are not so effective nor so well drawn as in "Triumphant Democracy," nor are they so pleasing in treatment as the exterior, with which they are not entirely in keeping. For heating and ventilation, the author proposes low-pressure steam-pipes, with air passed over them, the heating being by direct radiation, and "a powerful exhaust-shaft" to remove the vitiated air; but he does not mention by what means he proposes to drive or to exhaust the air, and this part of his report is somewhat vague.

"Habet."—As a bit of architecture this is one of the most pleasing designs in the room. shown in a very well executed pen perspective, It is a rather curious mixture of Gothic and Classic feeling; mullioned windows with Elizabethan ornamental pediments over them on the ground story; the upper story divided into bays by Classic pilasters, between which are circular-headed windows with geometric tracery in the heads. The projecting voussoirs in the archivolts of the windows would be much better omitted, and the mouldings carried round unbroken. A clock dormer, or what the French call a *fronton*, of graceful design, breaks the skyline in the centre. The lower part of the Cowgate front is treated very plainly, but still not with the marked character which the situation suggests, as aforesaid. The plan is not so satisfactory. The reading-room, not the lending library, is placed on the entrance level, on the left of a wide vestibule, and the ladies' room on the right, with no connexion with any of the rooms where books are kept except across this central corridor, or up or down the public stair at the back of it. The lending library is reached by going through the corridor and down the staircase at the back of the building; much too circuitous a route. The reference library runs in an L-shape, on the top floor, along both front and side of the plan, and is a very prettily treated room, with ample side light everywhere from large windows carried much lower than in most of the other designs, the author apparently thinking that with the long wall-space in his L-shaped room he could keep the bookcases low and yet give the necessary space. Our impression is that the shelf-room would be found deficient eventually.

"Non sibi sed Patriæ."—A capital set of drawings, showing a front in what may be called a very Wren-nite manner; circular windows with square architraves in the mezzanine; circular windows without architraves in the attic; a projecting centre with rusticated ground story, and an order of pilasters above, with floral festoons between, and a segmental pediment over. The library area is square, and kept nearly unbroken as far as walls are concerned, iron columns and low partitions being used; thus, the magazine room is only a space partitioned off from the lending library by a low screen between iron columns; good for light and air, but not conducive to quiet. The reference library is divided into two aisles by coupled iron columns on surbases, and carrying a semicircular arcade. There is ample top light, and the excellent interior perspective gives a most favourable idea of this room, as spacious, dignified, and well lighted. The news-room, with its large square area and side windows, must, we fear, be very deficient in light in the centre. The plan has practical merits in the way of simplicity and spaciousness, however, and the architectural treatment is exceedingly well carried out.

"R. S. A."—This has some merits of plan; the main library rooms are in a square form with an aisle and colonnade round them; a good interior sketch showing the proposed treatment of the news-room in Burmantofts faience is very pleasing, but the exterior, both in drawing and design, says but little for the artistic accomplishments of "R. S. A." The external treatment of the main central staircase is spirited in idea, but the detail and execution of the whole is poor.

"Space and Light."—The competitor under this title has shown immense diligence and energy, and sends in no less than three modifications of his design, filling quite a length of wall space. His design A 1 enters from George IV. Bridge with a large porch and vestibule in the centre of the front; the ladies' reading-room is on the right, and a staircase with an octagonal end facing to Cowgate on the left. The general reading-room is immediately behind, occupying most of the area, the ladies' reading-room having what is apparently a borrowed light from the main one,—not a good arrangement. The reference library is above, with the ladies' room in the same position, the lending library below; the public are admitted into the centre of the latter, with a counter running round, but the storage room for books seems insufficient, and the "juveniles," instead of having a separate room, have seats allotted to them in the general room; perhaps with the idea of their being better under surveillance. In connexion with the reading-room proper a special room for juveniles is provided. The reference library, the main compartment of which runs parallel to George IV. Bridge, has a panelled wagon ceiling, with skylights down the centre, which will give ample light. What is the sense of the capitals half way up the pilasters we cannot make out. It is lucky the author did not trust to his elevation, and that he had the well-executed pen line perspective to fall back upon. The elevation looks so wiry that it would be enough to condemn the whole set; but the perspective shows it in a much more favourable light. It is a curious design, mainly Gothic in feeling, though with a considerable smattering of Renaissance in detail; the large elliptical windows at the top are not very happy in effect; but the whole thing is marked by undoubted originality. A 2 shows a nearly similar plan, only with the staircase square-ended instead of octagonal, and a Classic design, which looks a great deal better in elevation than the other, and not so well in perspective; but the perspective sketch is an exceedingly rough one. A 3 is a somewhat more economical design on the same general lines, the elevation being cut down to a more level skyline. The author has shown a great many extraction-flues for vitiated air (we presume those coloured yellow are extractors), of a larger area than necessary for practical purposes; he proposes to exhaust by a fan driver, and says that "numerous openings for admission of fresh air are provided in all the rooms," but he says nothing about warming these indraughts of fresh air, only that he proposes to heat the building by means of steam-pipes placed round the rooms, &c. According to all we can gather from this, the occupants of the rooms would be exposed to overheating from a coil on one side and to a draught of cold air from another side, and the conclusion is that the author has made a show of ventilation and heating provisions in the drawings, without properly understanding how it is going to work. According to the statement in the report, there are *four* alternative designs, not three; but these ramifications must have proved too much for us, or the committee have not hung the fourth one.

"For Health and Culture."—This is a prettyish Renaissance building in front, with a back portion which does not seem the least to belong to the front, but to be another building. The library rooms run along the George IV. Bridge front, with entrance and staircase at the south-east angle; the rooms are rather small, the lending library far too small, but there is a large "well" storage apartment at the back of the building, for books, with a stair running from top to bottom of it, which is a feature in the plan: its usefulness depends very much on the way in which it is proposed to arrange and work the library. If there is supposed to be a large proportion of books to be carefully kept but only very seldom referred to, it is good; otherwise not.

"Study" deserves mention for the pretty Classic composition, with dome over the centre, shown in the brown ink perspective. The plan has nothing particular to recommend it. It is amusing to read on the corridor leading from the door marked "entrance for staff," the words also "separate entrance for ladies," the same corridor leading to the ladies' door of the lending library. If writing "separate entrance" on a plan made it separate, planning would be easy work.

"Index" is a very curious design of some ability, with some odd faults. A great deal of space is consumed on corridors and staircases, and the library rooms are somewhat limited in consequence, but generally the plan is well arranged. The front is of Roman Classic design, with a colonnaded portico on the main story, flanked by very massive blocks of rusticated masonry at the sides; but under these weighty angle masses is where the author has chosen to cut his main entrances, thus weakening the effect of the whole. Between the doorways is a rusticated arcade, and above the arches (and below the colonnade) break out three Classical bow-windows, as one may term them, which light the ladies' room,—very inefficiently, it may be observed. At the Cowgate side appears to be another group of columns with rusticated surbases, standing apparently upon nothing; at least, there is no indication of anything on the plan. Altogether a design with a good deal of humour.

"Athenia" is to some extent an inspiration from the Bank of Scotland, which faces the end of George IV. Bridge, and may, therefore, be supposed to supply a kind of *genius loci*. The main block of the library portion is in a basilica form, running east and west, with the apse of the basilica facing George IV. Bridge, and the entrance and staircase of the right of the block. In the lending library the side counters are advanced in front of the line of the "basilica" colonnade, leaving a long, narrow alley for the public, an inconvenient shape, and we observe that in the perspective view this counter is omitted. The interiors of the lending and reference libraries look well architecturally, but the reference library would be sadly deficient in light for readers. The good point in this design is that the author has taken the hint from the circumstances of the site, and has made the whole of his building below the level of the bridge roadway one great mass of rusticated basement, with good effect.

"Supervision."—A design showing a kind of mingling of Queen Anne detail with Gothic effect; at least, the ponderous corbelled-out turret at the angle savours more of Gothic than of any other style. This feature is designed as a "well" book store, which gives a practical meaning to it. The library block is at the back, at right angles to Cowgate; the access to the rooms rather tortuous; the rooms themselves would be good ones; the reference library is both a well-arranged and (with its three glass domes in the ceiling) a light room. The author appears from the plans to have paid a good deal of attention to warming and ventilating, and to know what he is about in that respect, but his descriptive report is not attached to the drawings.

"Liber."—This is a design showing a good

* In reference to this question of light, we notice that Mr. Waterhouse observes in his Report:—"Whichever design is chosen, it would be as well if sections were prepared to show the amount of direct light coming through the windows of the lowest public room. It is clear that no direct light can reach the centre of a room, 60 or 70 ft. wide, the tops of the windows of which are 50 ft. below the cornice of the house opposite,—35 ft. distant. A contraction of the floor-space may therefore be wise under the circumstances, even though it involves somewhat decreased accommodation."

deal of artistic feeling, so far as external architecture is concerned. The perspective sketches are executed in pen and ink, on a rather strong-toned tracing paper; the sketch looking from George IV. Bridge shows a solid ground-floor story of unadorned masonry, merely pierced with a few plain small mullioned windows, above which is a strongly-marked sill, forming the base to a series of rich traceried windows, with buttresses and arches and statues between them; pinnacles and an open Gothic balustrade over. A perspective from Cowgate is added. If the author had only carried all round this strong distinction between the plain basement and the rich upper story, he would have made a still better piece of work of it. The reference library is a lofty room, with a late type of hammer-beam roof over it. It would make a fine apartment. There is an alternative Classic design, which also shows good qualities, but the plan is open to a good deal of objection.

"Harmonia."—Why Harmonia? There is nothing specially harmonious about it as far as we can see. It is a design in rather commonplace Classic style, with an orthodox basement and order, and balustrade with great big flower-pots on the top of it. The point of merit in it consists in the special expression which is given by the treatment of the greater part of the upper story as unbroken wall, where the bookcases of the reference library are ranged. The plan is in the main a simple and well arranged one, at least so far as the main rooms and the access to them are concerned, except the "Juvenile Room," which is very badly placed, cut off from everything else by a passage with glass partitions, most awkwardly carried across to give access to the staircase from Cowgate level. This is a feature enough to vitiate any plan. The interiors of reference library and staircase are creditable pen drawings, showing well-worn features of Classic detail with nothing special to recommend them.

"Duomo" is noticeable for having a circular treatment of the whole library block, with an internal colonnade, from which rises the domed roof of the reference library, the lower portion of the building forming a circle of larger diameter around it. The entrance is at the north end, and is marked by a graceful kind of minaret spire over it, which is not spoiled by being duplicated at the other angle. The lending library is on the entrance level, and the public are let into the centre of it, with a circular counter all round them. This does well enough, but in the rooms intended for reading and reference there is this objection to the circular form, that on a comparatively small scale it is a very noisy room, every whisper of conversation being intensified in it. This has been found to be a practical objection in similar cases, though it is not, perhaps, perceptible in a room on such a scale as the British Museum Reading-room.

"Bibliography" shows a very rich and elegant front elevation; an arcaded ground-story of a kind of Renaissance-Romanesque type, with round arched windows with mullions in them, and carved ornament in the spandrels; there is a strongly-marked architrave and cornice over this, and then a loftier range of mullioned windows between piers, relieved by statuary, and a small attic with *œils-de-bœuf* and garlands over; this part of the design is stopped by solid turrets of nearly unbroken masonry at the angles. The whole shows great taste and refinement; and on the Cowgate front we observe that the first-floor architrave and cornice is carried round, and all beneath it treated as plain basement work. The portico leads from George IV. Bridge into a vestibule running across the front, terminating in a stair at each end, that on the left going down to the news-room, that on the right up to the reference library. The access to the lending library is immediately from the corridor. The plan is a very good one, and the reference library an effective room, well lighted from a sloping roof with large skylights, carried by richly-decorated semicircular ribs. There is a frieze of figures beneath the cornice on either side of the *œil-de-bœuf* windows. The skylight windows are rather too bare and bald, with their large sashes and straight bars; they require to be broken up and given more variety and richness of surface to correspond with the character of the room below. This is certainly one of the best designs here, practical and effective at the same time. The lanterns finishing the angle-turrets or pavilions of the front are a little commonplace; we should imagine the author could improve on those.

"Elia" is a poor and commonplace design, about which we only feel bound to express any opinion because a local paper has thought proper to single it out for special admiration, and to state that the drawings are superior in execution and finish to any others in the room: a statement which can only possibly be explained on the supposition that the author has very energetic friends on the local press.

"Usui Civium."—A design with a good deal of merit. The library block is kept at the back, covering the whole width of the ground at right angles to Cowgate, the advantage of which is that the north side of the large rooms gets nearly clear of adjacent buildings and can be well lighted on three sides. To utilise the front space, however, the author has to be content with lighting the magazine-room, ladies' room, and others, from small open courts, and the access to the lending library, through a small passage between two of these courts or areas, is cramped and unsatisfactory. Once in the lending library, the pencil sketch shows it as a very commodious and well-lighted room; the reference library may claim the same praise, and has the merit which we noticed in another design, of making the bookcase blocks part of the architectural design of the room, though with a less bold and effective treatment than in the other case. The external aspect is shown in a nicely-tinted sepia sketch, the bridge being broken away to show the whole of the Cowgate side of the building; it is a Classic building with nothing remarkable about it, rusticated ground-story, and an order of coupled pilasters above; but it is graceful and suitable to its purpose.

"Regium Donum."—The two exterior alternative perspectives, one with cupolas over the angle pavilions and the other without, are elegant Classic groups, the former especially, but the details in the larger drawings, views of interiors of the libraries, are wanting in refinement, and the drawings rather showy than satisfactory. The plan is good in general idea, but with bad points in detail; for instance, the angle of the lending library jutting out into the hall opposite the entrance, looks very clumsy on plan, and would appear almost as much so in execution. The separate stair to the ladies' reading-rooms is not of much value, because they have to traverse the whole width of the hall or upper landing of the main staircase to get any books after all. Altogether the main attraction of the design is in the two small exterior perspectives.

"Desideratum."—A very fine and numerous set of drawings. The external design is of a Classic type, freely and picturesquely treated; a strong rusticated ground-story with semicircular-headed window designs, but the tympana of the arches filled in with sculpture, with an architrave window-head under; the angle portions form slightly projecting pavilions, with cupolas over them, and angle rustications, with sculptures as acroteria (N.B., the cupolas are too small and light for the substructure, and look out of scale). The centre portion has as a central feature a segmental pediment and Corinthian columns, and a high pyramidal roof rises over this portion, the whole being rather French in appearance. The plan is simple and effective, a spacious entrance vestibule giving access to staircases in the pavilions at each end and to the lending library opposite the entrance, which is very well arranged, with a horseshoe counter and plenty of space before it for the public; the two staircases give access to the reference library above, which runs down the centre of the building from George IV. Bridge to the back, subsidiary rooms, as ladies' reading, &c., opening direct out of it from each side. The room is very boldly treated internally, the cornice line runs into a semicircle, and the ceiling into a semi-dome at each end an arcade is carried all round the room, some of the tympana pierced with windows, and others being filled up with ornament in relief; a great panelled ceiling rises above the cornice, part of which is pierced by skylights. With all this the room does not seem in the drawing to be quite adequately lighted, but it is a very fine design, and the plan is admirably practical, compact, and simple.

"Lux," which is the last in order, is a Gothic design of rather florid type, and somewhat thin and wiry in treatment, but not without a certain degree of effectiveness. The best point in it is the treatment of the Cowgate elevation, which is kept very plain and solid, with a series of long buttresses rising from the lower ground-level to the upper story in strongly-marked vertical lines.

The limit of cost was 30,000*l.*, and some few of the competitors have probably exceeded this limit, but we have avoided any special comment on individual designs in this respect, as it would be hardly possible to form a decisive judgment on this point without more detailed and protracted consideration of each design than time would have allowed.

Considering that the competition was limited to Edinburgh architects, the result gives a favourable idea of the general average of architectural talent represented beneath the smoke-wreaths of "Auld Reekie."

*** Since the above remarks were written it has been announced that the first premium has been awarded (on the recommendation, as we understand, of Mr. Waterhouse, the assessor) to the design marked "Bibliothèque," by Mr. G. Washington Browne; the second to "Triumphant Democracy," by Mr. Dunn, an assistant in the Burgh Engineer's Office; and the third to "Harmonia," by Mr. J. Lumsdaine, principal assistant to Mr. Morham, Superintendent of Public Works. That two out of the three premiums should have been taken by gentlemen engaged as assistants under others is an unusual incident in the history of competitions, and argues a great deal of energy as well as architectural ability on the part of the authors, who must, we presume, have been carrying on their usual official duties at the same time. We are sorry to see that the proposition has been advanced that these gentlemen are not entitled to the awards on the ground that they are not "architects carrying on business in Edinburgh." The real object of the limitation in the instructions was obviously to restrict the competition to Edinburgh men. If the Corporation disappoint two men of the reward of their labour on the mere technical verbal objection that they are not themselves "carrying on business," they will do a very shabby thing. It is still more to be regretted that the principal mover of the objection appears to be the Superintendent of Public Works, in whose office one of the competitors is engaged. As long as the subordinate did not neglect his official duties for his competition design, we should have hoped the only feeling of his principal would have been gratification that he had so clever a man in his employ. We know nothing of the two competitors concerned, — never heard their names before; but they have given undoubted practical evidence of ability, and the proposal to deprive them of their premiums on a technical ground is not at all creditable to those who have set it up.

Mr. Waterhouse's report, we see from the *Scotsman*, has been referred to a sub-committee, who are empowered to select a plan for the Building, in consultation with the Library Committee.

PRESERVATION OF STONE.*

DIMONT'S composition, brought out in 1870, partakes more of the nature of a cement (like many others of the preparations that are being discussed) than of a protective fluid or paint. The material is directed to be made up of one thousand pounds of potters' earth, formed into a paste, with twenty pounds of any common

* Continued from p. 880, *ante*.

oil, and four pounds of fish oil. Then a separate paste is formed from arachis (ground nut), which is spread over the previous compost, followed by the addition of eight pounds of finely-powdered charcoal and twenty-four pounds of coarse hair, which are well stirred in. There are several other similar compounds mentioned in the specification, in all of which oil of some kind seems to constitute the water-repelling ingredient.

The following are the remaining oleaginous preparations that have been patented or recommended :—

Egleston's preparation (1885, patent 9,087); so-called "fat oil" (oxidised linseed oil) is employed in conjunction with paraffin, vaseline, and sulphur. The mixture is used warm, and applied with a brush. Hibble's protective was made up of ground lime, turpentine, linseed oil, silicate of lead, and ground sulphate of iron. Another patentee suggests sulphur and linseed oil. Hardwicke's mixture contained potash, alum, fish and linseed oils. A paint to be applied hot, and which is made up of ten parts of wax, thirty parts of oil, and one part of litharge is considered worthy of mention in Knight's American Mechanical Dictionary. Provisional protection only was granted for the use of a varnish made up of shellac dissolved in naphtha or other solvent, to be applied specially to the preservation of magnesian limestone. Another suggestion was to mix any convenient resinous varnish with various metallic oxides. R. Alexander, in 1867, patented the use of mixtures of varnishes containing lime; and another patentee a few years later, the use of a varnish composed of the poisonous juice of Euphorbia plants.

Bituminous and similar preparations have also been utilised, and those which have been made the subject of patents are as follows :—Bethell's patent, chiefly available for wood, though also recommended for porous stones and cements, such as Portland, freestone, chalk, some marbles, plaster of Paris, &c., consists in the injection, under pressure, of mineral or vegetable tars, bitumens, &c., mixed or not with any suitable solvent. In some cases sulphates of iron or copper can be employed.

J. Teychenné, feather merchant, patented in 1846 improvements in treating stone to render it hard and impermeable, which improvements consist essentially in the immersion of the stone in hot melted mixtures of tar, pitch, &c., with fine sand. If the stone is not desired of so dark a colour, resin, turpentine, &c., are substituted for the tar.

In 1872, a process for saturating bricks, stones, &c., with boiled coal tar, pitch, and similar materials, was patented by G. H. Smith, of New York, who also obtained another patent which relates to the treatment of porous plasters, stones, works of art, &c., and by this process it is claimed that articles formed of plaster of Paris are rendered harder and more durable, and susceptible of a fine polish. The articles are saturated by immersion or otherwise, with materials such as coal-tar, coal-oil, melted or dissolved pitch, bitumen, &c., and subsequently heated until all volatile matters are driven off, and cooled slowly.

The use of ozocerite and paraffin wax, melted or in solution with suitable solvents, has also been patented.

In G. O. Kramer's patent, a mixture of boiled tar and sawdust is employed.

The class of expedients so far discussed are only in the most favourable cases capable of certain limited applications, and in not a few instances it is difficult to see with what object some of the ingredients are employed, yet, ineffective as a large number of them are, their consideration is instructive as showing the direction in which a large number of patentees have been working. A larger, more important, and certainly more scientific section of devices are those which have for their object the formation of some insoluble mineral compound upon the surface, either by acting upon an ingredient of the stone itself or by the reaction upon each other of the constituents of the mixture applied. Of course in every case regard must be had to the nature of the stone, and further, the protective coating, to be of any real good, should be harder (or at least as hard) and very much more resistant to atmospheric influences than the untreated stone to which it may be applied.

The silicates of soda and potash, commonly termed soluble or water-glass, may be regarded as the sheet-anchor of most seekers after a good mineral protector for stone surfaces, as in upwards of twenty patents these silicates play a more or less important part.

To M. Kuhlmann is generally ascribed the credit of having been the first to use silicate of soda for the purpose of protecting stone. This application, although it gave a good start to the employment of soluble silicates, was not so great a success as had been sanguinely expected. The river front of the Houses of Parliament was coated with the substance, but so slow was the union of the silica with the calcareous matter of the stone to form the desired insoluble and resistant silicate of lime, that a few winter months proved its inutility.

Various attempts were next made to protect the silicate covering until union with the lime could take place. Szerelmey, about whose method there seems to have been much unnecessary mystery, worked in this direction, and professed to cover the silicate with an asphaltum varnish; but there is little doubt, from Frankland's investigations, that various other paint-like mixtures were employed. A distinct step in advance was taken by Mr. Frederick Ransome, of Ipswich, whose indefatigable labours as the inventor of artificial stones are well known. Mr. Ransome applied alternately to the stone solutions of silicate of soda and chloride of calcium; in this way decomposition is effected at the surface of the stone, a white enamel-like silicate of lime being formed together with soluble chloride of sodium. The formation of a soluble salt in the above reaction is, of course, a serious disadvantage, and Mr. Ransome made several efforts to avoid its presence or modify its effect. One patent, applied for by this gentleman in 1860, which received provisional protection only, had for its object the decomposition of solutions of rosin, shellac, or other gums soluble in alkaline or saline solutions with soluble silicate. Further, in 1868 another patent was obtained by Ransome in which the use of objectionable alkaline salt was entirely avoided, as, in the place of an alkaline silicate, a solution of silicic acid or so-called "soluble silica" was employed; solutions of lime or baryta in water, or saccharine solutions of the same substances, were first applied to the stone and followed by the silicic acid solution.

In another process more complicated reactions were aimed at by the employment in succession of solutions of phosphate of calcium or of some aluminium compound, lime, or baryta water and solution of silicic acid.

Erichsen, Barff & Sullivan, Bartlett Bros., and other patentees give a distinct preference to silicate of potash as compared with the soda compound. In Barff & Sullivan's process the stone is treated with a mixture of alumina, carbonate of zinc, and silicate of potash. In the process of Messrs. Bartlett Bros. & Co., carefully-adjusted strengths of silicate of potash and aluminate of potash were used. If the solutions are not too concentrated the mixture hardens only after some time, forming insoluble silicate of alumina, but if too strong the mixture solidifies immediately, and before it can be applied to the desired purpose. With respect to aluminate of potash, we are reminded by its mention of an instructive incident which illustrates the value (?) of the examination made by the Patent Office of new applications. A year or two ago a chemist made application for letters patent for an improved disinfecting powder. Unusual delay in the granting of provisional protection caused inquiry to be made, when the agent in charge of the matter was informed that the delay was due to doubts on the parts of the omniscient examiner as to the existence of such a class of compounds as aluminates. The absurdity of such ignorance is evident in the face of the fact that every standard treatise mentions such compounds, which are also well known to every one having the least pretence to chemical knowledge. Would it not be better to do away with the absurd farce of a preliminary examination which seems only to serve the purpose of providing salaries for several more or less competent individuals, and which certainly does not in the smallest degree add to the legal value of the patent.

The late Professor Barff, whose name has already been referred to, and who will be best remembered in connexion with his ingenious invention for producing rustless iron, patented a mixture containing silicate of soda, powdered pumice, and white lead, which applied as a paint forms a hard impervious coating on stone. Another patent by the same gentleman involved the use of a mixture of silicate of potash and soda, alumina and oxide of zinc. A few years later Barff recommended for the purpose of preserving and indurating cement, stone, stucco, &c., a mixture of sulphate of barium and carbonate of lime, together with silicate of potash, the object of using the sulphate of barium being to prevent the too rapid combination of the silicic acid with the lime, and so to secure the more complete impregnation of the surface of the stone with the mixture.

Professor Church in 1862 advocated a process in which a solution of silicic acid was first applied to the stone, followed by one of hydrate of barium. In 1884 M. Dennstedt obtained letters patent for a mode of preserving plaster and stone, which seems to include Church's method, as in this it is proposed to brush the surface over with various acids in aqueous solution, such as carbonic acid, sulphuric acid, silicic acid, or chromic acid; the application of any one or other of these to be followed by a solution of hydrate of barium, or less preferably hydrate of strontium, whereby the insoluble corresponding salt is produced.

A. L. Fleury preferred to use the silicic acid solution alone, taking advantage of the fact that as the water evaporates the silica becomes insoluble, and incapable of re-entering directly into solution with the water again. In the case of many calcareous stones, some formation of silicate of lime also results.

J. C. Russell's method, which secured only provisional protection, consisted in the production of a kind of artificial stone, made up of limestone mixed with soluble silicate, and then immersed in water, either pure or acidulated with hydrochloric or carbonic acid, or mixed with magnesium compounds, such as the mother liquors from salt-pans. The cement thus formed is dried, broken up, calcined, pulverised, mixed with water, and used as a paint.

Several patentees have worked in the direction of producing on the surface of the stones or bricks glazes or enamels obtained by the fusion of mixtures of silicates. The chief patents having this object are those of Summerfield, obtained in 1854; of the Viscount de Romanet, in 1876; of A. Gonault, in 1879, which applies especially to the glazing of sandstones; of C. Moreing, in 1880, also chiefly applicable to sandstones which were to be soaked in an alkaline solution, such as caustic soda and potash, dried, and then baked almost to vitrification, so that union between the silica, alkali, and any calcareous or ferruginous matter in the stone may be more or less completely effected. In another process, the stones, after being fixed, were to be brushed over with any moderately fusible enamel mixture, which was then to be melted with a hot-air blast, blow-pipe, or other means.

Hydrofluo-silicic or fluo-silicic acid, which may be regarded as a mixture of hydrofluoric acid and silicic fluoride, is an active agent in several processes. Thus, in Coombe & Wright's process, patented in 1861, this acid was used for coating stones, bricks, &c., being, of course, most useful where the substances treated contained materials capable of forming insoluble compounds with the acid.

In another process the stone was first washed with a hot solution of barium hydrate, or of bicarbonate of magnesium, and then brushed over with fluo-silicic acid.

Coombe & Wright, in a second patent, mixed

the fluo-silicic acid with lime, chalk, and other suitable materials, and used the mixture as a preservative paint, and for making artificial stone. In Sullivan's method, soluble fluo-silicates were employed, such as those of zinc and magnesium, and subsequently decomposed by application of alkaline silicates or aluminates. Faure & Kessler's patent (1883) refers chiefly to the use of fluorides and fluo-silicates of various metals.

Bernays also recommended fluo-silicic acid, the surface to be subsequently washed with a solution of a potassium salt so as to produce the insoluble fluo-silicate. Rust & Mossop's plan was to coat the surface first with a solution of hydrate of barium, and then with fluo-silicic acid.

Crookes proposed the use of a mixture of fuller's earth and hydrofluoric acid, the acid uniting with the alumina to form the insoluble fluoride.

The remaining processes are of no very great importance, and may be briefly enumerated. Daine's method (1854, pat. 1,765) involves the employment of a solution of sulphate of zinc, "to fill the pores and neutralise the tendency to alkaline efflorescence," and then, with a brush or exhausted case, a solution of sulphur in linseed oil or other suitable solvent is applied.

A process for preserving and indurating marble and other stone, and rendering it less liable to chip in working, was patented by Page in 1855, and consisted, first, in brushing over the surface a mixture composed of water, lime, and pearlash; then carefully heating until quite dry, and while still hot rubbing thoroughly over the surface white beeswax. Another patent relating particularly to the hardening of plaster, utilises solution of barium hydrate, in which the articles are to be soaked for a few days.

Paul's processes, patented in 1857, effect the preservation of the stone by the application thereto of solutions of soluble aluminates, zincates, or alkaline solutions of phosphates of aluminium or zinc, the solutions being mixed before using with finely-powdered carbonate of magnesium, chalk, silica, or other suitable substances. One would-be-patentee put himself to the trouble of trying to secure the monopoly of the use of a wash made of lime and salt and water. Others identified themselves with the application of sulphates of iron or alumina, the object being doubtless, in the case of stones containing carbonate of lime, to produce the corresponding less soluble sulphate.

In Douglas & Watson's patent a suitable solution of rosin is applied and then a solution of alum. Solutions of soap applied to stone which is then treated with alum solution result in the formation of an insoluble coating of stearate or oleate of alumina, which is sometimes found useful in rendering stones, cement, &c., impervious to water.

In 1873, the application of a hot solution of alum as a preservative of stone was patented, and this might conceivably be useful in the case of some calcareous stones.

"Spence's Metal," perhaps, can hardly be regarded as adapted to stone preserving purposes, yet in some situations, especially when not likely to be exposed to a high temperature, it may be found useful as a damp-proof material. The "metal" is produced by melting powdered sulphides, chiefly those of iron and copper, with sulphur.

The following is a brief description of Westmacott & Perceval's elaborate processes for the purposes of preserving, strengthening, &c., plaster casts and natural and artificial stones. In the case of plaster articles, these, when dry are immersed in a mixture of sulphate of barium, borax, and boiling water, or in the case of walls the mixture may be applied with a brush. The object is to harden the surface. A second operation follows called the "sealing process," and consists simply in the application of shellac or other varnish. A further operation is termed the "permeating process," and consists in immersion in a bath of melted paraffin wax. For surfaces other than plaster the first process is omitted.

In 1880 A. Magaud obtained a patent for the application to stone of the sulphates of iron, copper, or zinc, together or separately.

McMurtrie & Chambers, in their patent process, treat the stone with a mixture of earthy or metallic sulphates, and subsequently with a solution of fatty acids, the object being to form an insoluble soap on the surface.

C. Laboré plunges the stone into a solution preferably of sulphate of zinc and alum. The process is only applicable to those stones containing lime compounds capable of being converted into sulphates.

Spiller's method was proposed for magnesium limestone only, and consisted in the treatment of the surface first with superphosphate of lime and then with ammonia solution, the idea being evidently to produce amongst other results an insoluble double phosphate of ammonium and magnesium which will be, so to speak, held on to the surface by the hydrate of lime formed at the same time.

In concluding this summary of the subject it may be well to point out that it is futile to expect that any one particular preparation will answer equally well for every kind of stone. Even to obtain a moderately satisfactory result,—and this is all that is at present obtainable,—the chemical nature of the stone to be treated must be carefully taken into account, or the result in some instances will be a positive deterioration of its quality, and in others a waste of labour and material.

NOTES.

WHEN the Irish Crimes Bill is out of the way,—which every one, whatever may be his politics, devoutly hopes will be shortly the case,—some of the numerous Bills which have been introduced into Parliament will be discussed. There is not one which in many respects is more important than that to make further provision for technical instruction, which has been introduced by Sir H. Roscoe, Sir Lyon Playfair, and others interested in the subject. We suppose that no one will deny the need for greater technical instruction, but we fear that this Bill is but a crude attempt at reform. The subjects which are included in the purview of the Bill are (*a*) the use of ordinary tools, (*b*) commercial arithmetic, (*c*) commercial geography, (*d*) bookkeeping, (*e*) French, German, and other languages, (*f*) freehand and machine drawing. The Bill gives authority to any School Board or other School Authority to provide and maintain "day technical and commercial schools and classes for the purpose of giving instruction in any of the subjects set out in the schedule," which we have already enumerated. The first criticism which occurs is that two things are here mixed up which should be kept entirely separate, namely, technical and commercial instruction. The use of ordinary tools, and hand and machine drawing, ought not to form part of the same curriculum as foreign languages. The latter form part of a higher primary instruction; the former should either be taught in technical schools, or, so far as the very elementary part is concerned, in connexion with the ordinary primary schools. But the policy of obtaining funds in the same manner as for ordinary instruction in primary schools is a subject which requires to be carefully worked out. There is difficulty enough already in obtaining money for primary schools; to obtain further sums for technical education will be very difficult. That a discussion of this Bill in the House of Commons will be useful cannot be doubted, but it is not the least likely to become law. The subject must be dealt with in a Government measure, and the scheme must be a comprehensive one for the introduction of technical schools throughout the country. The grouping of school districts for the purpose of the higher technical education seems almost absolutely necessary, but, be that as it may, we repeat that the subject is far too important to be left to the initiation of private members, and deserves the careful attention of the Goverment.

THE section of the proposed Panama Canal, referred to in a former number of the *Builder* (p. 861, *ante*) shows a maximum depth of cutting of 360 ft. at *La Culebra*. This depth, moreover, is measured on the centre line of a cutting aligned on the side of a hill; and the depth from the top of the slope must be considerably more. The point in question is in the centre of a district of about 7½ miles in length, comprising the sections of *Obispo*, *Emperador*, *Culebra*, and *Paraiso*; the total estimated contents of which amounts to 93 million cubic yards. As the attack on this prodigious mass must furnish the limit to the time for completing the canal (supposing funds to be forthcoming), any engineer would have made it the first point on which to set to work. Accordingly it was announced that work was to be commenced at "the hard-rock mountains of Culebra" in December, 1881. Up to June, 1886, the aggregate of 12,350,000 cubic yards had been excavated in these four sections. It is to diminish this almost inconceivable cutting that it has been proposed to introduce locks. It should not be forgotten that the tidal range of the Pacific, which amounts at times to over 27 ft., renders a canal without locks, like that of Suez, physically impossible. A tidal lock at Panama has been an integral feature of the scheme, and 480,000*l.* was allowed for the cost in the first estimate. The gates of this lock cannot be less than 40 ft. in height. The extent to which it is possible to raise the summit level of the canal by means of locks, if the matter be regarded according to the ordinary rules of art, is limited, by the supply of water, to a rise of 135 ft. This would still leave 225 ft. of cutting at Culebra. It is obvious that as the construction of locks is now spoken of as a matter for consideration, no very material diminution of the block of 81 million cubic yards left in this district last June is likely to have been since effected. Lieut.-Col. Lloyd, in 1827, ran a series of levels across the Isthmus, with a view of determining the relative mean ocean levels on either side. His work, which is in the possession of the Royal Society, gives a difference of 3·52 ft., by which the Pacific was higher than the Atlantic. The engineers of the Panama Railway, however, regarded the mean levels as identical. It is possible that difference of opinions may exist on that point, but the question is immaterial when compared to the known fact of the higher tidal range at Panama; nor is it justifiable to speak of the canal, under any circumstances, as without locks, as all vessels passing through it must lock, either up or down, at Panama, for at least twenty hours out of the twenty-four. The tidal range at Colon is, according to Colonel Lloyd, 1·16 ft.

THE report of a sub-committee of the National Health Society on the proposed "Sanitary Registration of Buildings Bill," which has been forwarded to us, is a very plain-spoken document, in decided opposition to the Bill in question. The Society opposes it on the ground that it will result in the creation of a new and unnecessarily numerous class of so-called "experts"; that there is no adequate provision for securing the real *bonâ-fide* competency of such experts; and that it is proposed to license "Sanitary Associations incorporated by licence of the Board of Trade." On this subject the Committee remarks:—"The licence in sanitary practice which the Local Government Board is required under the Bill to give to such an Association would clothe it in its corporate capacity with power to give an unchallengeable certificate of sanitary perfection. Associations of this kind exist nominally for the mutual help and protection of their members; but they are necessarily largely dependent for their financial success upon the amount of business in the way of sanitary inspection which their professional advisers and associates can develop. Looking to the fact that the Bill is being promoted by an Association of this sort, it is not unfair to assume that a primary reason for its introduction is to be found in the desire to foster the work and encourage the operations of such bodies." This has been very much our opinion from the first. The Bill is, we believe, essentially an advertisement.

A QUESTION was asked in the House of Commons, on Monday, relating to the proposed introduction into the Railway and Canal Traffic Bill of a clause compelling the railway companies to carry town refuse at a cheap rate. In alluding to this matter on the 4th inst., we deprecated the proposal as unseasonable; and it appears from the statement made by Baron de Worms that the Government take the same view, and do not intend to import any provision of this nature into the measure. They have, as it is said, failed to make it acceptable to the agricultural interest, who confidently looked for benefit in the Bill. Sir Richard Paget, at the meeting of the Central Chamber of Agriculture last week, stated that he should oppose the Bill from beginning to end unless they could get amendments introduced to render it of more practical benefit to themselves. What they look upon as the primary object of the measure is frustrated by any justification of lower rates for imported than for home produce; and that this position does not of necessity involve the adoption of a principle of strictly equal mileage rates, was clearly shown by another speaker,—Mr. Bell, of Newcastle,—at the same meeting. He said that what the farmers asked for was that foreign goods should not be carried over a greater distance at a less rate than home goods of the same class were carried over a shorter or the same distance. This is a reasonable demand, and it is to be hoped that the House of Commons will agree to amend the measure accordingly.

THE reply given by Lord Henniker in the House of Lords on Friday last with regard to the destination of a statue of the late Lord Iddesleigh throws a curious light upon the manner in which our public buildings are decorated. Interrogated by Lord Mount-Temple as to whether it was proposed to place the statue in the Central Hall of the Houses of Parliament or upon one of the pedestals in St. Stephen's Hall, Lord Henniker replied that, as representing the Office of Works, he was unable to give an answer to the question, but that the whole matter was in the hands of the Lord Grand Chamberlain! Lord Mount-Temple submitted that the question of the position of a statue in a building was eminently one for the decision of an architect, and instanced the case of the statue of Earl Russell in the Central Hall as an example of the mistakes which are made when professional advice is not taken in the selection of a site. Lord Mount-Temple's remonstrance evoked no echo among their lordships, who are content to leave the adornment of the palace in which they meet in the same hands as those which regulate Court entertainments. It may be safely averred that in no other civilised country in the world would such a way of arranging such matters be tolerated.

THE judgment of Mr. Justice Smith in the case of Wright *v.* The Wallasey Local Board (Law Reports, 18, Queen's Bench Division, p. 783) is worth noting. By the statute 17 and 18 Vict., c. 128 *seq.*, "No ground not already used as, or appropriated for, a cemetery, shall be used for burials. . . . within the distance of 100 yards from any dwelling-house." It was contended by the plaintiff that the words "dwelling-house" must include the curtilage and not the house alone. But this view the Judge would not accept. As he truly remarked, why should a burial be permitted within 100 yards of a house without a pleasure-ground or yard, and yet not within, say, 200 yards if it has these appendages? Whether 100 yards is in itself a sufficient distance seems to be questionable, but the statute is clear, and is made certain by this decision. If those who are competent to form a judgment consider the distance too short it is the duty of the Legislature to increase it.

NO. XXIV., the last issue of the *Wandtafeln* of Dr. Launitz, is the most interesting of the series. It represents a restoration of the Acropolis, and gives a view not only of all the buildings still remaining, but also the hypothetical site and appearance of many of the monuments mentioned by Pausanias, which have long ago perished. It is, indeed, as a help to the realisation of this class of monuments that Dr. Launitz's work has its chief value. We all know, either from memory or photographs, what the ruins of the Parthenon and the Erechtheum, the Temple of Nike, and the Propylæa, are like, and if we want to picture them as they stood, new-built in the time of Pericles, we probably prefer the image of our own fancy to that of Dr. Launitz, for somehow his restorations remind us rather of Munich than Athens. But which of us, in thinking of the Acropolis, peoples it with all the motley throng of shrines and statues and votive offerings which met the eye of Pausanias? How many could recall off-hand, ever so roughly, where the horse of Strongylion stood or the triple Hekate Epipyrgidia of Alcamenes? And yet if we want to *realise* ancient Athens these and a hundred other monuments must not be absent from the picture. These restorations are, in fact, of service, not as satisfying the artistic sense, which they rarely can, but as a stimulus to a flagging historical imagination. Dr. Launitz's "Acropolis" is accompanied by an explanatory text, much needed by those to whom the account of Pausanias is not familiar. A ground plan of the Acropolis is to follow, giving details of the building only seen here in somewhat confusing perspective.

IN attempting the restoration of the Acropolis, topographists have at least a sufficiency of fixed points to start from in restoring the Agora; in the plain below, it is far otherwise. The most recent,—and, as it seems to us, far the most satisfactory,—attempt is the sketch given by Kaupert in the *Philologische Wochenschrift* (No. 18, 1887). In the brief text which accompanies the sketch, Dr. Kaupert clearly states the conditions of the problem. In the main, this restoration coincides with that of Dr. Curtius. He believes the Agora to have been a quadrangular space broadening towards the south, and lying in the hollow between the Thesean hill and the hill on which the Athena Archegetis gate now stands, and to the south the slopes of the Areopagos and Acropolis. This quadrangular space was divided, he believes, half-way by the street of the Hermæ, the line of which produced would reach the Athena Archegetis. He takes the Stoa of Attalus as the eastern boundary of the northern half, in the same direction bounding the southern half he believes the Stoa Poicile stood. Immediately opposite the Poicile,—*i.e.*, bounding the southern Agora on the west,—he places the Stoa Basileios, the Stoa Eleutherios, and the Temple of Apollo Patroos; bounding the Agora on the south, the little complexa of buildings, the Metroon, Bouleuteicon, and Tholus. Where he differs from Curtius is this. Curtius neglects entirely the so-called Hall of the Giants. Kaupert takes its east end as the west boundary of the upper Agora. Whether this Hall is to be taken into account or not can only be decided by a thorough excavation of its very substantial remains. How long are we to wait for this?

THE Chapter Coffee-house, in Paternoster-row, is about to succumb to the fate which overtook its neighbour and contemporary, Dolly's Chop-house, about five years ago. Concurrently with the migration of the booksellers into the Row soon after the beginning of last century,—in succession to the tire-women and milliners,—the Chapter seems to have replaced Child's, on the southern side of St. Paul's-churchyard, as the resort for proctors and the clergy. Dons and other University men in town, and the booksellers, soon followed. Here assembled the Witenagemot of the Wet-Paper Club. But it is also in connexion with Chatterton, Goldsmith, Bonnell Thornton, and Churchill that the Chapter will be remembered. Chatterton speaks of it more than once in his letters to his people at Bristol:—"I am quite familiar at the Chapter-house, and know all the geniuses there: a character is now unnecessary; an author carries his character in his pen." Again he writes from the King's Bench, May 14th, 1770 (shortly before his death), to say that a friend he meets there has undertaken to introduce him to the young Duke of Northumberland with a view that he should accompany his grace on the grand tour: "but, alas!" he adds, "I spake no tongue but my own." The Chapter is cited in "The Connoisseur" of January 31, 1754, as the haunt of "those encouragers of literature, and not the worst judges of merit, the booksellers." Some reminiscences of its literary and political frequenters during the period 1797–1805 are given by Alexander Stephens. These comprised the two Parrys, of the Jacobin "Courier"; Patterson, Pitt's mathematical tutor; the Robinsons, and Chalmers, their foreman; Alderman Waithman; Dr. Buchan, author of "Domestic Medicine," who with Dr. Gower compounded the famous punch; Walker, the rhetorician; and John Johnson, who, at 72, St. Paul's-churchyard (since the draper's shop), published Cowper's first volume of poems, his "Table Talk," and "Task," together with Newton's Olney Hymns.

MR. JOHN NOBLE has undertaken to endow a free library in Lower Marsh (*priùs* New Cut), Lambeth, with a gift, in honour of Her Majesty's Jubilee, of 10,000*l*. We learn, too, that the same borough is offered another free library, to be known as the "Durning Library," at Kennington; together with a site, for the same object, in Norwood. The Earl of Cadogan promises to contribute books to the value of 300*l*. to the proposed Free Library for Chelsea. Moreover, as tenant for life, his lordship will grant a ninety-nine years lease at a nominal rent of a suitable site for the building. Lady Cadogan supplements this gift with 50*l*. worth of books; her husband also has offered to contribute 200*l*. towards the restoration of the organ in St. Luke's Church.

SIGNOR GIACOMO BONI writes to the *Riforma* complaining that the canal front of a fourteenth-century palace at the ferry of St. Maria di Zobenigo, at Venice, has been recently newly plastered, and coloured the colour of rotten strawberries, with panels in imitation of relief, and white and dark lines, such as are usually seen under shop-windows. The Ca' Foscari, on the Grand Canal, erected towards the end of the sixteenth-century, and attributed to Maestro Bartolomeo Bon, the architect of the Porta della Carta, has been painted a uniform and dark red colour. The new colour, according to Signor Boni, does not harmonise with the plaster until the oil has become decomposed, and then instead of improving the colour deteriorates. Signor Boni advocates the use of plaster made with lime and ground brick, quite red and smooth, but not shining, which acquires very beautiful brown tints with age, and quotes Goethe's lines:—

"Was glänzt ist für den Augenblick geboren
Das Aechte bleibt der Nachwelt unverloren."

In conclusion, Signor Boni says:—"I hope that not only a material difficulty, but rather a persuasion that such things should not be done, will dissuade people from gilding afresh our ancient buildings. I hope that the new red plastering will be real plastering of red brick, not the colour of rotten strawberries or faded poppies; and, above all, if our fourteenth-century houses have a guardian genius, as the Cippolino quarries in the island of Eubœa had their marble Apollo, I hope that he will stay the hands of those who attempt to whitewash the mouldings and foliage of the arches and capitals."

THE vicar of Herne, Kent, has reprinted in a pamphlet form from the *City Press* of April 20th an account of Herne Church, with illustrations, for the purpose of raising funds for the restoration of the north aisle and the repair of the tower, the other portions of the church having been already restored. The cost of a new roof to the north aisle and the repair of the tower is estimated at 800*l*., of which sum 250*l*. has been collected. The plea upon which the vicar appeals to the citizens of London is that the church is the last resting-place of a former Lord Mayor of London, Sir

Matthew Philip, who died in 1470, and who, with his third wife Beatrice, is buried in the chapel of St. John the Baptist, commonly called the Milles Chapel, part of the north aisle of the church. The north aisle has a low-pitched lean-to roof, which is much dilapidated, and it is proposed to remove this roof and replace it by a span roof of an elaborate Gothic design. There appears no necessity for this alteration in the character of the roof; the aisles of churches in the Decorated and Perpendicular periods were commonly covered with lean-to roofs, and to substitute a roof of an entirely different design from the original roof seems an unnecessary and indefensible proceeding.

THE High Canons Estate, at Shenley, Hertfordshire, a beautiful property of about 810 acres, in Dacorum Hundred, has just been placed in the market. The out-farms and other holdings yield an income of nearly 1,800*l.* a year. The large sheets of water in the park were constructed during the proprietorship of Mr. T. Fitzherbert. In Shenley churchyard were buried the Rev. Phillip Falle, the historian of Guernsey and Jersey; and Nicholas Hawksmoor, the architect of, *inter alia*, St. Anne's, Limehouse, burnt on Good Friday, 1850; Christ Church, Spitalfields; St. George's, Bloomsbury; St. Mary Woolnoth, Lombard-street; St. George's-in-the-East, Wapping; and the new inner quadrangle of All Souls, Oxford. He died on March 25, 1736.

THE Twyford Estate, of 916 acres freehold, traversed by the Itchen river, and lying two miles out of Winchester, between the high roads to Southampton and Portsmouth, was to have been sold at auction on Tuesday last. St. Mary's Church, Twyford, has been rebuilt, in the Transition style, by Mr. A. Waterhouse, R.A. At Twyford House Franklin is said to have written the story of his life: he was then a guest of Dr. Shipley, bishop of St. Asaph. In the Catholic school at Seagers House was educated Alexander Pope.

A CORRESPONDENT writes,—"One of the most extraordinary resolutions ever arrived at by a public body was perhaps that recently passed by the Ventnor Local Board. With a view to reducing the expenditure of the town, notwithstanding the strongest opposition on the part of the chairman and leading members, the Board resolved, by a majority of one, to give the whole of the officials three months' notice to terminate their engagements, discharge the gardeners at the Park, and invite tenders for keeping the grounds by contract, reduce the wages of the workmen and other *employés* by sums varying from 1s. to 4s. per week, *suspend the flushing of the sewers*, and directed that all letters intended for circulation within the district should be delivered by hand instead of through the Post-office! The Board afterwards offered the offices to the clerk at 20*l.* less per annum, the Surveyor at 50*l.* less, the Sanitary Inspector at 14*l.* less, and the rate collector at 12*l.* A discussion subsequently arising in which doubts were expressed as to the Board being able to make any alteration in the salary of the Inspector without the consent of the Local Government Board, who refund a moiety of the amount paid, it was resolved to allow him to continue on the full amount for the present time. On the decision of the Board becoming known, a petition was immediately prepared and presented at the following meeting by the Ventnor Medical Association, and signed by all the medical men of the district, asking the Board to reconsider their decision with regard to the surveyor (Mr. R. S. Scott), whose removal, after nearly eight years' service, would, in their opinion, be prejudicial to the interests of the town, but without effect, and Mr. Scott having accepted an appointment elsewhere, has already left the town, which will probably be without a surveyor for some time to come." Our correspondent is responsible for the statement as to facts, but if they are correctly given, we may remind the Ventnor Local Board of one consideration which seems to have escaped them, viz., that Ventnor largely subsists on the visitors who come there for health or pleasure. If they render the town less desirable as a resort to either of those two classes they may find they are quarrelling with their own bread and butter more effectually than they at all expected.

A VERY large work by Mr. Geo. Tinworth, a subject of life-size figures in terra-cotta, extending 23 ft. in length, has been on private view at Messrs. Doulton's this week. It is called a "panel," but the word conveys a wrong impression: it is properly not a panel in relief, but a series of detached figures arranged in an extended composition, only one or two being attached to the background, the rest standing out on a tiled floor several feet in width from the background, conveying the general idea of a section showing the upper end of a room, with figures congregated on the floor. This is quite a different art from relief sculpture, and is to our mind a very doubtful experiment. It produces a realistic effect, in one sense, which seems to take it out of the category of ideal sculpture; when we see this tiled floor and the figures standing out on it, we almost expect to see them coloured and dressed like real life also. A bas-relief, or even an alto-relief, is a far more intellectual form of sculpture than this modelling of a company of figures standing about; and the objection to it is more felt on a life-size scale than on a small scale. Apart from this, the group, which represents Christ before Herod, shows all the same qualities of vivid and spirited realisation of the story which we have been accustomed to in Mr. Tinworth's smaller scale illustrations of Scriptural incidents. Herod and Christ are seated side by side, and the key to the expression and action of the principal figures is to be found in the words "Herod questioned with him in many words, but he answered him nothing" (Luke xxiii. 9). Carrying out this idea further, a figure, a kind of "remembrancer," is introduced behind the king, with a scroll, supposed to be prompting or reminding Herod of various points on which to question his prisoner. The face of Christ seems to us expressive of dogged resolution and contempt, rather than the orthodox Christian meekness; but perhaps Mr. Tinworth, who has often shown his indifference to conventional readings, has and intends to express that idea. The remark that Herod "hoped to have seen some miracle done by him" has been expanded, in very dramatic spirit, into an excuse for inserting groups on either side of such persons and their friends and attendants. One of the best figures in the composition is that of the woman on the left who leans against the wall looking down sadly on the invalid on a couch at her feet; and on the right the group of the paralytic man on the floor and the others bending forward from behind him is very effective, and is the only really *composed* portion of the work, in a sculptural sense. Vivid dramatic conception of the scene, and realistic expression in the separate characters, are Mr. Tinworth's strong faculties; and these are among the most important elements in great sculpture; but they are not everything, and we do not call this sculpture in the highest artistic sense: it is something very clever and interesting, but it is not sculpture.

THE *Figaro-Salon*, which is being brought out in numbers by MM. Boussod, Valadon, & Co., and by M. Baschet, contains a large number of very beautiful illustrations of the leading works in the *Salon* of this year. The third number, which has just reached us, contains a beautiful reproduction of Heilbuth's "Jour d'Été" among other things. The previous number contained illustrations of two pictures which have attracted much attention, the hospital scene by M. Gervex, and the painting of a rural wedding breakfast, "Noce d'Ouvrier," by M. Fourie.

AMONG the suggestions which have appeared in the *Times'* correspondence, since the Opéra Comique disaster, for rendering theatres safer, an important letter from Mr. John Percy suggested the employment of thin mild steel or iron (properly braced) for scenery, wire gauze for the drop curtain, iron framing, with perhaps a papier-maché finishing surface, for the stage itself; Mr. Percy aiming at making theatres "unburnable." His suggestions are well worth consideration, but we doubt whether anything would be considered a satisfactory substitute for the time-honoured "boards" on the stage itself. A suggestion of "B. M." that there should be many wall-openings, filled in with thin stuff that can be broken through in case of fire, is ingenious; but he forgets that, for the safety of the property in the building, such a method could not be applied for final exit through the outer walls of the building, and therefore would only let people out of the auditorium to intensify the final crush at the real outer exits.

ARCHITECTURE AT THE ROYAL ACADEMY.—VIII.

1736, "Duke-street Mansions, Grosvenor-square," Mr. J. T. Wimperis. A well-executed pen-drawing, showing a large block of "houses in flats," sufficiently broken up by projecting bays to have a generally picturesque effect, but not presenting anything remarkable. The plan may be very well arranged, but there is nothing to show this. The treatment of the end of the block, with two large octagonal turrets standing out from the line of wall at the angles, and balcony railing carried across flush with their outer faces, is effective.

1739, 1747, "Statues for decoration of pediment, St. Vincent-street Buildings, Glasgow," Mr. A. W. Bowcher. Pencil sketches of a series of small cupid-like figures with musical instruments, designed with a good deal of spirit, and which have this special merit, that, while they are sufficiently conventional and symmetrical for decorative effect, they show an attempt to do something special and original, instead of putting up mere lame repetitions of classical types of architectural sculpture.

"Chaines Church, Worcester: Enlarged and Restored," Mr. Aston Webb. Two very well-executed pen drawings, exterior and interior, showing a small and unpretending Late Gothic church, with a low square tower. A small plan is commendably added, showing what is old and what are the additions, the latter consisting of a new north aisle and vestry in keeping with the rest of the building.

1742, "Drawing-room and Library: Steamship *Ormuz*," and 1744, "Dining Saloon," in the same vessel, Mr. J. J. Stevenson. These represent the internal woodwork fittings designed by Mr. Stevenson for this vessel. Reproductions of the drawings, which are by Mr. H. W. Brewer, were published in the *Builder* of June 4. The fact that an eminent architect has been commissioned to make designs for the entire fittings of the ship is one of the instances of the importance now attached to the decorative fitting up of passenger steamers; and no doubt Mr. Stevenson would ensure the good execution of the work, and the employment of the best profiles for the mouldings, &c., and the tasteful execution of the furniture. It does not appear, however, that anything special beyond these *desiderata* has been attained. The filling in of the windows in the drawing-room is pretty; but the general details show nothing beyond commonplace devices of panelling and pilasters. One would have thought that so special and unusual a commission might have suggested some attempt at novelty and originality of treatment.

1743, "Enlargement of Kew Church: Interior looking East," Mr. Henry Stock. This is the interior view of what is shown externally in No. 1720; the drawing appears to be a well-executed water-colour; but is hung too high to be well seen; and here, as in the other view, we are left in the dark as to how much is original and how much is addition.

1745, "Competition Design for Proposed Church of St. Paul's, Kensington," Mr. Edwin Dalby. A very well-executed water colour of a brick church, with red-tiled roof and traceried Decorated windows, apparently the tracery in stone; the clearstory is diversified by a flat stone string at the level of springing of the window-heads, with cross-striping in the brick-work above. There is nothing out of the way in the design, but it is well carried out as far as it goes, except that the two west end

buttresses disappear very awkwardly within the roof of the return buildings, which are carried across the lower portion of the west end.

1746, "The Tower of St. Ouen, Rouen," Mr. Arnold B. Mitchell. A monochrome drawing, a kind of geometrically symmetrical perspective, executed in the telling but rather mannered black and white method illustrated in No. 1687, to which we have already referred.

1745, "St. Alban's Shrine, St. Alban's Abbey, Herts," Mr. R. W. Paul. A very good example of free pencil sketching.

1750, "Cathedral of Tours," Mr. Aston Webb. Another free pencil sketch, but slighter; the western towers of the cathedral, with their peculiarly effective contrast of rich upper stories and lofty, plain, rock-like substructure, are seen from under a partly-broken arch which flies across the foreground. Nothing could be better chosen for a picturesque architectural sketch, but we are rather inclined to suggest that sketches for exhibition should be a little more finished than this.

1752, "Part of a Series of Windows in the Rajah's new Palace at Kolapur. 1. Sivajee's surrender to Jey Sing. 2. Sivajee and Sumbajee, his son, escaping from Delhi in baskets. 3. The goddess Bhowanee, in the temple of Purwuttum, interposes to save Sivajee from sacrificing himself"; Messrs. Ward & Hughes. These would be of interest as designs by English artists for glass in an Indian palace, but, being on a small scale, and hung at the top, it would be impossible to see them without a lorgnette. They seem to be grouped in a spirited manner; we can discern no special indication of stained-glass treatment. They fill three window-heads of trefoil shape, with the upper foil terminating in ogee form.

1753, "Church of St. Luke: Decoration of Interior," Mr. W. Stirling. What Church of St. Luke? We always think these vaguely-named churches and houses with no locality given are imaginary, and existing as what the author would like to carry out. The drawing, a large coloured elevation, shows a bay of a church of rather nondescript style, a kind of round-arched Gothic. Flowers are freely painted on the stone ground of the walls, decorative flowers with symmetrical arrangement, but with a certain amount of variety in detail; above the arch is a painting with gold ground of the Adoration of the Magi; over each pier is a panel painting of a Saint; St. George and St. Agnes are the two represented; we presume these are intended for mosaic. Above is a stained-glass window with subjects from the Temptation and the Expulsion. The gold backgrounds make a glare in the drawing which would not be the case to the same extent in execution, and so far the drawing is unfavourable to the effect of the design; it is, however, even apart from this, rather too patchy and scrappy in effect, and wants concentration and the contrast of a little blank surface; but there is no doubt a great deal of originality in the design, and it is very well put upon paper.

1754, "Testcombe, Fullerton, Hants," Mr. W. D. Caröe. An elevation of a much-diversified, many-gabled, red-brick house, coloured so as to convey something of a pictorial effect, the ground-line given in section: not a bad way of illustrating an architectural design. The design is a mixture of red brick and wall tiling and half-timber gables, picturesque in appearance, and the drawing very well coloured; but as there is no plan, one can form no clue to the meaning of the various projections and gables; it is a picturesque conglomeration, that is all we can tell.

1756, "St. Clement's, Oxford: Parish Buildings," Mr. H. Wilkinson Moore. This is a very pleasant, characteristic bit of building; a small plan is added, showing the arrangement of the buildings, which consist of a long block containing the "parish hall," the end of which faces the street, and an adjoining block containing coffee-room, reading-room, &c. These are treated separately in the design, the small accessory rooms being treated as a domestic building, a street house of humbler order, in fact, and the end of the hall is shown with three large pointed windows high up, giving a "public-room" character; this upper range, we find from the plan, lights the schoolroom; the parish room, on the ground-floor, is lighted by square-headed mullioned windows, with long corbels between them, assisting to carry the upper wall, which is oversailing to some extent. Without any pretentiousness, the building is a very good example of quietly picturesque effect arising naturally out of the disposition of the plan.

1757, "Design for Stained-glass Window," Mr. T. W. Bladen. A two-light window with a figure in each light, one playing a hand-organ (not a barrel organ, *bien entendu*, but one of the small organs called in Mediæval parlance a *portatif*, as capable of being carried in the hand), the other singing; cherubic heads fill up the upper part of each light, and below the figures are scrolls containing lines from Milton's glorious little poem "At a Solemn Musick." The idea is good and the figures are graceful and expressive, but the colouring as shown in the drawing is rather dull and heavy in effect.

1758, "West Croydon Congregational Church: One of the Three West Windows," Mr. E. Frampton. This is a lofty and narrow two-light window, the effect of which is shown in a well-executed and effective coloured sketch, rather than drawing. Mr. Frampton, unlike the author of the last-named window, is obviously not afraid of his colours, and instead of trying to tone them down into respectable dulness, he puts them in brilliant masses, but well balanced and contrasted, and with very transparent effect in the drawing. The upper portion, which is one subject (though divided by the mullion), represents the Adoration of the Magi; the upper part shows the starry sky, forming a dark blue back-ground relieved by powderings of stars; above this is some rich Gothic tabernacle work. Two smaller subjects are given below, one in each light. The treatment of the subject is suitable to glass; the figures are expressive and well designed; altogether this is one of the best bits of stained-glass drawing in the room.

THE CONGRESS OF FRENCH ARCHITECTS.

A BRIGHT sun and exceptionally fine weather, succeeding to the storm of the previous week, favoured the success of the fifteenth Congress of French Architects, which commenced its sittings on Monday, June 6th, at the École des Beaux Arts under the presidency of M. Bailly.

As usual, the first day was devoted to preliminary proceedings, and the consideration of certain questions which periodically recur, and have a special professional interest, and which were again relegated to various committees for consideration. The subject of public competitions, so ably treated two years ago by M. Paul Wallon, assumes more and more importance from its close connexion with the subject of the "Caisse de Défense Mutuelle," the establishment of which was first set on foot in 1884, and which equally figures in the orders of the day of the present Congress.

Perhaps, by the side of other questions, such as those relating to professional charges, sanitation, roads, artistic copyright, &c., one would have wished this year to see the question of theatre construction prominently brought forward. It is one full of practical importance and affecting many different interests. The Société Centrale could hardly overlook a subject which so much concerns the public safety, and some sound practical advice from the leading professional body might have influenced the measures to be taken by the Administration for the prevention of calamities such as that which has recently taken place.

M. Loviot, this year, undertook the review of the *Salon* architectural exhibits; but as the *Builder* has already spoken at length of these, we will merely here pay a tribute to the ability of the paper read, without going further into the subject. M. Loviot, who is the son-in-law of the lamented Duc, is a young architect of great promise, who has already obtained the Cross of the Legion of Honour for his restoration of the coloured decoration of the Parthenon.

The order of the day included a notice of the life and words of M. Ruprich-Robert, but M. Just Lisch not having had time to prepare his paper, was obliged to postpone his notice of the deceased architect to another meeting. We may mention here that M. Lisch succeeds Ruprich-Robert as director of excavations at the Arènes de Lutèce.

At the close of the meeting a subject was brought forward which considerably interested the architects who hold official relations with the State and the municipality. On several occasions Parliament has had to decide in regard to votes of money occasioned by the cost of work exceeding the approved estimates. In order to obviate this for the future, the Minister of Public Instruction and Fine Arts has instructed the Prefects and other Government officials that they are not to accept from architects any plans which have not been completely and accurately made out in regard to detail and to the method of construction employed (including furniture in cases where that forms a part of the work), and in regard to the cost of the work. Besides this, the architects' proposals must in future include a final clause by which they bind themselves, on their *personal responsibility*, to confine the work, except on a special official order, within the cost first specified and sanctioned.

This is the general tenor of the Ministerial circular which came before the Congress for consideration. It is evident that on principle the Minister is perfectly right to wish to suppress an abuse, but it appears that this code is somewhat Draconic. When an architect undertakes work for the State there is an actual signed contract between him and the Minister. But such a contract should have a character of reciprocity, and if the architect is to be made responsible for excess of cost over the estimate he ought also to be the sharer in any overplus arising from a reduction of the estimated expense in carrying out the work. Upon this delicate point the Minister of Instruction is silent.

On Tuesday, June 7, the members of the Congress repaired to the Military Hospital of Val de Grâce, the last remnant of the celebrated Abbey founded in 1621 by Anne of Austria. The church, which is one of the finest monuments of Paris, was commenced in 1645 from the designs of François Mansard and Lemercier. Long interrupted by the troubles of the Fronde, it was completed in 1665 by Lemuet, assisted by Gabriel Ledru and Duval. The Abbey, suppressed at the Revolution, has become a hospital of 900 beds. The rooms are large and airy, and the buildings surrounded by fine gardens. Some of the ancient apartments of Anne of Austria have been restored to the condition and appearance they presented in her time. A large court, separated from the Rue St. Jacques by a grille, and in which there is an absurd statue of the surgeon Larrey, which does little honour to David d'Angers, precedes the principal façade of the church, the decorative treatment of which recalls that of the Italian churches of the end of the sixteenth century. It is a fine example of the Jesuit style, which has inspired so many religious buildings in France, especially St. Gervais, the Sorbonne, Notre Dame des Victoires, &c. The style is one which does not shine either in simplicity of lines or in correctness, but it is not deficient in richness and dignity; and the dome, flanked by four campaniles, which is seen from far on the horizon of Paris, between the Pantheon and the Invalides, is remarkable for its graceful design and outline. The timber construction in it, which was in a very dilapidated state, has been reconstructed in iron. Internally the church, which the unsparing revolutionary hand has despoiled of its rich decoration, looks to-day bare enough. It was transformed into a magazine at the Revolution, and was only in 1826 reopened for worship. The cupola is supported by four large arches and four pendentives. François Mignard decorated it with more than 200 figures, the largest of which are considerably above life-size. This gigantic composition is a kind of glorification of Catholicism. There should be noted also the paintings of Philippe de Champaigne and the splendid bas-reliefs with which Michael Anguier, the sculptor of the Porte Saint-Denis, has decorated the pendentives and the chapel arches. Under the dome is a high altar, the baldachino of which, supported by six great twisted columns, adorned with gilt garlands and palms, recalls that of St. Peter at Rome. The group in marble at the altar, executed by Lequieu & Desprey, is a repetition of the original group by Anguier, destroyed in 1793.

Last year M. Gosset, of Rheims, read a very able paper before the Congress on the ancient Christian basilicas, in which he traced the development of the dome, interrupted in the east by the fall of the Byzantine empire, and taken up again in the west on what he considered false principles, which destroyed the unity of the composition, and introduced common and conventional architectural forms in

place of religious symbolic ornament and mosaic pictorial decoration. Continuing the same class of subject, M. Gosset has this year presented an interesting study of the churches and mosques of Constantinople, fully illustrated, and which was listened to with great interest.

On the same day the Congress repaired to the *atelier* of M. Galland, the able decorator, whose works were exhibited some time since at the Union Centrale des Arts Décoratifs. The *atelier* is quite a museum, where the members saw, among other things, some important work executed for America, the fine cartoons for tapestries (intended for Gobelins), and the designs of work for the new Hôtel de Ville (in which M. Galland has his allotted place. These latter are carried out in accordance with the intentions of Ballu, the late architect; M. Galland, in the spirit of a true decorative artist, placing his idea in subordination to that of the architect. With many French painters the theory and practice of decorating is, unfortunately, very different from this.

On Wednesday, June 8th, the Congress met at the Luxembourg. As our readers are aware, the modern museum of painting and sculpture has been recently turned out into the ancient orangerie, and the Palace of Marie de Medicis is now entirely occupied by the Senate. It may be worth while, in speaking of the visit of the Congress to this well-known palace to remind the reader of its dates and architectural origin. It was commenced in 1615 by Jacques Desbrosses, nearly finished in 1620, enlarged by Chalgrin in 1804; then, from 1831 to 1844, considerably enlarged again by De Gisors, father-in-law of the present architect, M. de Gondouin, and grandfather of M. Scellier de Gisors, himself an architect of eminence, and who was kind enough to conduct the party over the building.

It was De Gisors who built the chapel called "du Sénat," situated in the left wing, and decorated with some fairly good paintings by E. Gigoux, Vanhelet, and Abel de Pujol. Near this is the "Chambre du Trésor," erroneously called "Chambre de Marie de Medicis," the decoration of which is as old as the foundation of the palace. The ceiling, attributed to Van Hoeck, represents the apotheosis of Marie de Medicis; the walls, arcades, and columns are decorated with medallions, figures, and arabesques on a gold ground, painted by Jean d'Udine and Van Thulden. Here were formerly preserved the most valuable archives of the Chambre des Pairs. We next visited the first floor, consecrated to the Senate. The first room visited was a committee-room formerly reserved for the sovereign when about to attend the sittings of the Senate. The decoration is heavy and in bad taste, like most of the work of the reign of Louis Philippe, which has been termed the mahogany epoch, and which exaggerates still further the vulgarity of the style of the Empire. In 1879 the Salle du Sénat was altered with the object of increasing the number of seats. The side bays were built up and turned into tribunes, and the room is lighted now from the cupola, which was formerly a surface covered with allegorical paintings. The decoration is rich and massive in character. In the midst of a hemicycle adorned with statues of eminent law-givers rises the President's throne, surcharged with decorative work in brass. This is the room devoted to the Council of Five Hundred. The architectural *motifs*, the occasional groups of sculptured cherubs, the medallions with cameo heads, &c., form a rather curious decorative medley; unity and harmony of effect being decidedly wanting. Behind this room is the library, the cupola of which is painted by Eugène Delacroix, with great power and effect. The "Salle du Trône" is very rich in effect, though a little overdone with ornament; the ceilings are the work of Brune, Balze, and Lehmann. Here the Peers formerly used to sit; to-day it is divided by partitions into committee-rooms. Various other rooms attracted more or less attention. In one are paintings by Cabanel and Flandrin, in another a fine ceiling by Jadin. Lastly, the grand staircase constructed by Chalgrin brought us back to the original starting-point of our inspection, which the exigencies of Parliamentary procedure had unavoidably abbreviated.

At 3 p.m. the Congress met again in the Hemicycle of the École des Beaux Arts, under the presidency of M. Marteau of Lille, to hear a description by M. Maspéro of the most recent of the excavations carried on at Luxor under his direction. M. Maspéro, who has been devoted from an early age to the special studies with which his name is connected, is still a young man, though with a very mature reputation. Since 1874 he has been Professor of Egyptian archæology at the College of France, and his literary work is, of course, universally known. No one could be better qualified to expound the celebrated ruin of which his son-in-law, M. Gayet, has exhibited an interesting restoration in the architectural room of the *Salon*.

Taking the temple from its foundation,—that is, from the date of Amenophis III. and Rhamses II.,—M. Maspéro traced the successive enlargements, which made it, like other great Egyptian temples, almost a town in itself, and the centre of an agricultural industry. Then, towards the third or fourth century of the Christian era, the temple, which had already undergone the mutilation of the Ethiopians, was transformed into a church: a convent was formed within its precincts, and Christian emblems were engrafted among the hieroglyphics. Lastly, the Mahommedans came in their turn, suppressing the church and the convent, and constructing a mosque in the "dromos" in front of the temple. An Arab village grew up on the mounds of sand which engulfed the remains of the pylons and colonnades of the ancient structure. When the excavations were commenced, the *enceinte* of the temple enclosed a population of 3,000 inhabitants distributed among about eighty houses. The eminent Egyptologist described with picturesque realism all the vicissitudes of the excavations, and the difficulties presented both by the nature of the ground and the opposition of the inhabitants. Even now the expropriated house-owners, though they have received large indemnities, persist in endeavouring to regain a footing there. However, in two years, the French expedition has accomplished a great deal of work. Unfortunately, the mosque is still standing, and the population make a set opposition to its demolition. However, adds M. Maspéro, though we are at present prevented from pulling it down ourselves, the condition and nature of the ground are such that it will very likely demolish itself before long, without any further trouble to the excavators.

At the end of this lecture, which was much applauded, the Congress hoped to have heard M. Lavastre, the decorator of the opera house, who had promised M. Sédille to treat the question of theatre decoration. But, with a delicacy of feeling perhaps a little exaggerated, M. Lavastre had thought that it was more fitting, so soon after the dreadful catastrophe at the Opéra Comique, to adjourn the subject to some future date, and M. Saladin rose instead to give some account of the archæological mission in Tunisia, which the Government had entrusted to his direction. This young architect, — whose excellent water-colour drawings in the architectural division of the *Salon* we have already mentioned,—conducted his audience through the curiosities of a region still little explored, the ruins in which form a useful complement to the study of the monuments existing in France. Bon-Chateur, ancient Utica, Dougga (where was a temple consecrated to Jupiter, Juno, and Minerva), Sbeitta (where some splendid mosaics have been discovered), Monastir, Soussa,—all bear witness that architectural evolution here followed the same lines as in France, and was under much the same developing influence.

Thursday, the 9th, was the day reserved for excursions beyond the city, and as this year one of the most picturesque routes of the environs of Paris had been selected, more than 150 members accompanied the excursion. Chevreux, Dampierre, and les Vaux de Cernay included a fine collection of historical monuments of great interest. The Château de Dampierre is the princely residence of the Ducs de Luynes, whose funeral chapel, decorated by the sculptor Bounassieux, is attached to the modest church of the village. The château was built in the sixteenth century by the Cardinal de Lorraine, and rebuilt in great part in the eighteenth century from the designs of Hardouin Mansard, by the Duc de Chevreuse. The architect Duban restored it in 1840. The principal façade, of brick with stone dressings, rises from a *cour d'honneur* closed by a very fine iron grille. On the front of the main block, which is flanked by two turreted pavilions, is a central feature with a double order of superposed columns, and a gable over. In the grand vestibule on the ground-floor is the "Penelope" statue by Cavelier, which the artist exhibited in the *Salon* of 1849, when he was still a *pensionnaire* at the Villa Medici. On the first story, reached by a staircase with a wrought-iron balustrade, is to be seen in the bed-chamber of Louis XIII. a silver statue of that king executed by Rude. In one of the *salons* may be seen also a curious "Minerva" statue, in ivory, gold, and silver. The gardens, by Le Nôtre, are large and fine, the stables curious, the library an admirable apartment.

The Vaux de Cernay are better known to the public, and the Baronne Nathaniel de Rothschild readily gave permission to visit the ancient abbey founded in 1120 by Simon de Montfort, and which still comprises the remains of the church as well as of a long building which served as the monks' parlour. To say the truth the restoration of these buildings has not been happy, nor do we care to see modern habitations installed amid the *débris* of the Middle Ages. Thus, in a room full of decorations and furniture brought from pretty nearly everywhere, one comes on capitals and a vault of the thirteenth century, which look very much out of place in the midst of all the bric-à-brac. There is certain character of grandeur about the place, however.

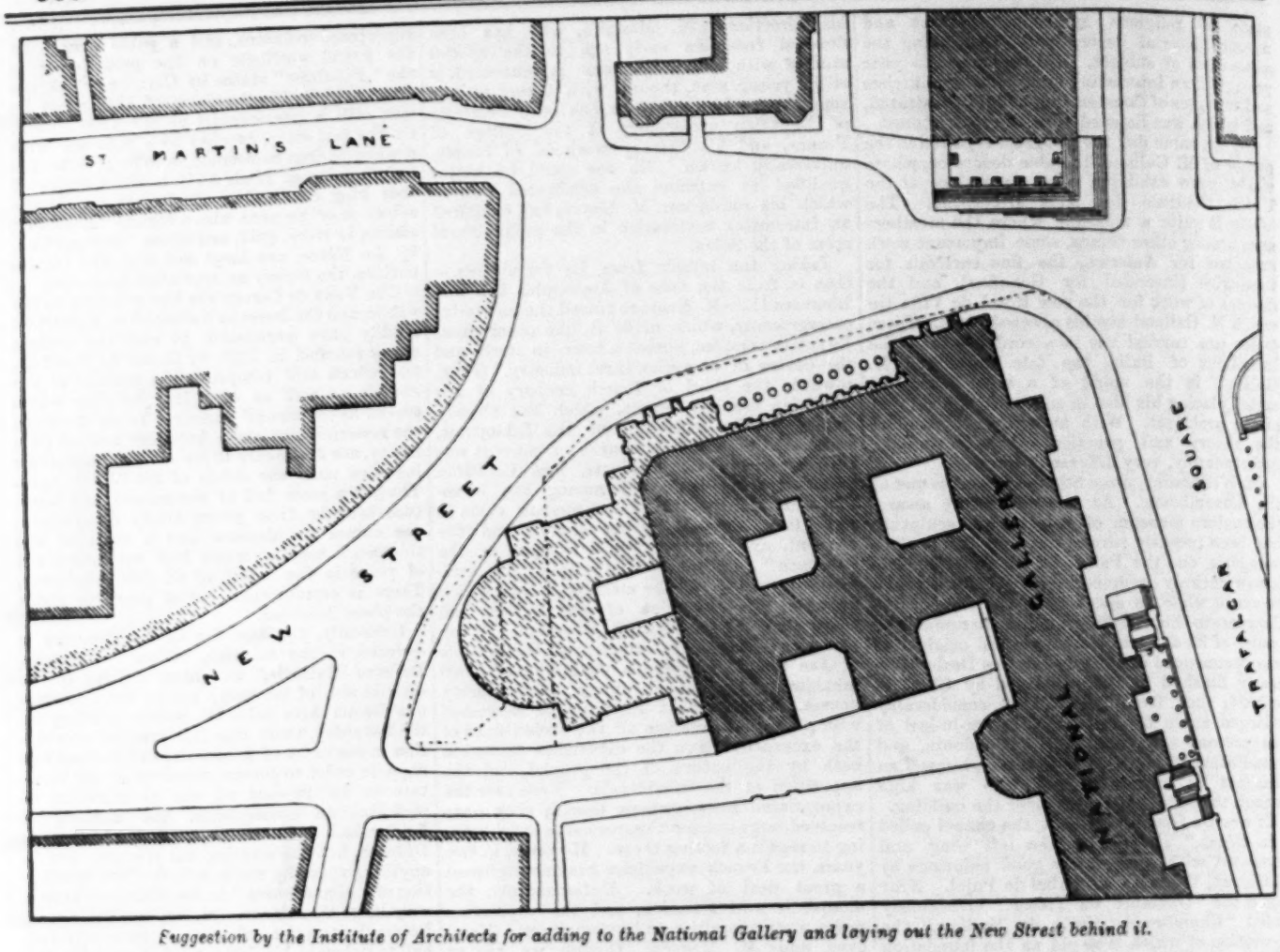
Generally, the last day of the Congress is devoted, in the morning, to the "Caisse de Défense Mutuelle," and after midday to the distribution of honours; but as the Académie des Beaux Arts holds its weekly meeting on the Saturday, there was this year an interruption in the order of proceedings of the last two days, in order to permit members of the Institute to be present at the presentation of medals. In consequence, the morning of Friday had been reserved for the Caisse de Défense, but the meeting did not give rise to anything specially worth record. The distribution of "récompenses" in the afternoon drew a very large attendance. M. Spuller, Minister of Public Instruction, who was to have presided, had to delegate his duties to M. Kaempfen, the Director of Fine Arts, who opened the sitting at three o'clock. He was supported by M. Bailly, President of the Société Centrale, MM. Hermant, Questel, Lenoir, Charles Garnier, Paul Sédille, De Joly, Echernier (Lyons), Marteau (Lille), Hénard, Paul Wallon, Galland the painter, Vicomte Delaborde, &c. After some words of welcome from M. Bailly, M. Kaempfen, in a short extempore speech, retraced the work of the Congress and rendered homage to the two eminent deceased architects, Le Soufaché and Ruprich-Robert, and uttered a warm eulogy on the indefatigable energy of M. Bailly, "le cher et vénéré maître, toujours jeune de corps, d'esprit, et de cœur."

On M. Questel it devolved, in his capacity of "Censeur" to the Société Centrale, to speak of the life and works of M. Soufaché, his predecessor in the same post, who was a pupil and collaborateur of Duban. We have already spoken* of the work of Soufaché, and of his success in the practice of domestic architecture, and the great influence which he exercised upon it.

Then M. Paul Sédille, in the name of the "Jury des Récompenses," proclaimed the names of the laureates of the Société Centrale. The Silver Medal, instituted by M. Soufaché for good work in domestic architecture, which, said M. Sédille, is the prose of the art, as monumental architecture is its poetry, has been awarded to M. Louis Charles Boileau, who directed the works of the Magasins du Bon Marché. This is not the sole title of M. Boileau to artistic honours, as he took the first premium in the competition for the monument to Gambetta,—for the architectural portion of it, that is to say,—the sculpture being the work of M. Aubé.

The second silver medal was decreed to M. Garros, of Bordeaux, pupil of Constant Dufeux, for his numerous private houses, all remarkable for the study and invention displayed in them. In addition to this, M. Garros has acquired such a reputation in the South of France, and is regarded with so much confidence, that he is never asked to make an estimate, his clients contenting themselves with indicating a sum which is not to be exceeded, and which never is. Another pupil of Constant Dufeux received the medal for archæology, M. Chipiez, who is well known by

* "Letter from Paris," Feb. 5, p. 211, *ante*.



Suggestion by the Institute of Architects for adding to the National Gallery and laying out the New Street behind it.

his publications on art and antiquity made in conjunction with M. Perrot. The silver medal for jurisprudence was given to M. Alfred Normand, author of some esteemed works on architectural jurisprudence. We may remark the fact also that M. Normand was the designer of the curious Pompeian house which was built for Prince Napoleon in 1860 in the Avenue Montaigne.

The silver medal offered to the École de France at Athens has been awarded, on the representation of the Académie des Descriptions et Belles Lettres, to M. Gustave Fougères, member of the École, for his important work in the excavations at Delos.

After these various awards, which the Société gives every year by way of indicating that the architect must be at once archæologist, jurisconsult, and artist, MM. Eustache and Bernard, both pupils of M. Ginain, obtained the silver medals given by the École des Beaux Arts. M. Raphael, pupil of M. Paulin, has obtained the silver medal given by M. Van der Boyen to the private schools of architecture; M. Judas, pupil of M. Ruprich-Robert, received that of the Rolland foundation in favour of the École des Arts Décoratifs; and, lastly, the silver medal founded by M. Sédille for artistic industries has been awarded, with general approval, to M. Froment Meurice, the able silversmith, who continues so admirably the artistic traditions of his father.

There is always a great interest manifested in the awards to the apprentices and to the building artisans, the "personnel du bâtiment." This year again we have seen, not without emotion, old, grey-haired labouring men coming up, at the call of M. Wallon, to receive in a trembling hand the medal awarded as a recognition of many long years of loyal service. The list of these old servitors is a long one. They have been faithful and zealous coadjutors with the architect; and one of them, already an aged man, was accompanied by his father, a venerable octogenarian, whose buttonhole was adorned with a red ribbon, attesting that in that family honours were hereditary. As usual, also, M. Wallon found ready and eloquent words in which to welcome the modest heroes of labour, and to satirise the so-called humanitarian theories which, in reality, represent the negation of talent, the encouragement of ignorance, and the decline of art.

Saturday, the 11th, the last day of the Congress, was set apart for a visit to the works of the Great Exhibition. So much information as to the progress of the works has been given in these columns from month to month, as to render it unnecessary now to enter into details. The visitors were received by M. Alphand, who, after having exhibited the plans and indicated the position of the principal buildings, conducted the party over the various workshops. MM. Bonvard, Formigé, Eiffel, and Dutert successively did the honours of the particular works they are directing; the first, for the Palais des Expositions diverses, the second for the Palais des Beaux Arts, M. Eiffel for the enormous substructures of his metallic tower, and M. Dutert for the Palais des Machines, the works of which, however, are not sufficiently advanced to be of much interest to visitors at present.

In the afternoon M. Charles Lucas, who, along with MM. Merindol, Daumet, and Rolland, represented the Société Centrale des Architectes at the Congress of Sociétés Savants held last month at the Sorbonne, presented, as in former years, an account of the proceedings at that meeting.

Among the subjects treated at this Congress may be mentioned especially a short paper by M. Daumet on the necessity of introducing some ideas upon art into the course of primary and secondary education in France, and a dissertation by M. Lucas on the origin of the plans of the round and polygonal churches still existing in France.

After a very well filled week, the members of the Congress, as usual, dined together at the Hôtel Continental, thus closing the Congress of this year.

The Simplon Tunnel.—The Swiss Cantons of Vaud, Valais, and Freiburg, have signified their intention of contributing respectively 160,000*l*., 40,000*l*., and 80,000*l*., to the Simplon tunnel. Geneva and Neuchatel refuse to contribute, but it is considered that the prospects of this scheme being realised are more encouraging than was recently the case.

PLAN FOR LAYING OUT THE STREE AROUND THE NATIONAL GALLERY.

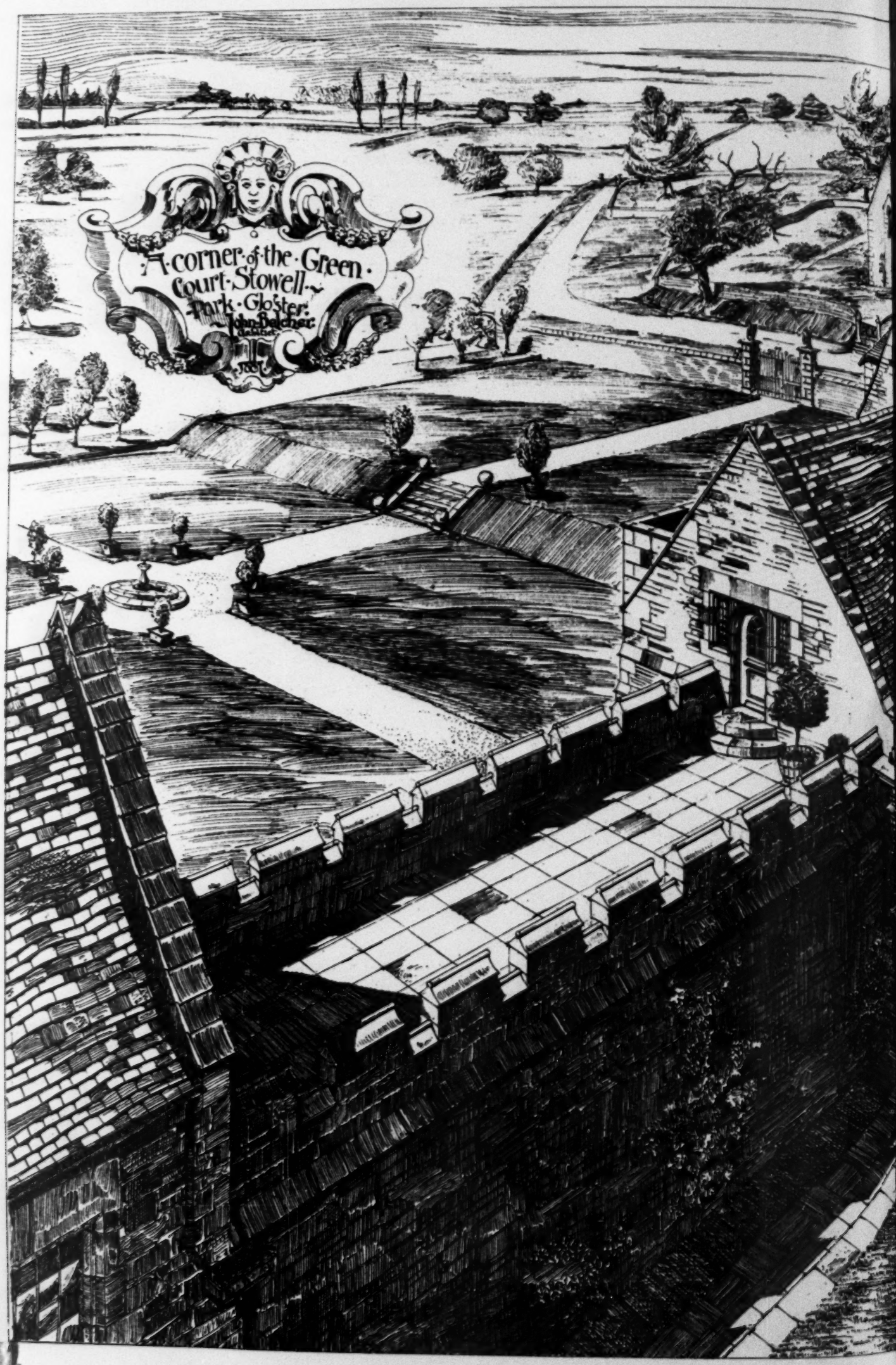
THE accompanying plan represents the suggestion of the Royal Institute of British Architects for laying out the new street behind the National Gallery, and making additions to the gallery. Something good might be made of the new colonnade on the east and the proposed large apse on the north side of the gallery, but it is a pity the Institute did not suggest such a remodelling of the east side of the gallery as would have enlarged the narrow neck of street between it and St. Martin's Church.

Architectural Association Visit to Cambridge.—The following is the programme of the Association's visit to Cambridge this Saturday, June 18th, under the guidance of W. M. Fawcett, F.S.A.:—

Leave Liverpool-street	8·45 a.m.
Arrive at Cambridge	10 3
Christ's College	10·30
Round Church	11·0
St. John's College	11·30
Trinity College	12·30 p.m.
Caius	1·30
Senate House, &c.	2·0
King's College (Luncheon in Hall.)	2·15
Clare	3·45
Queen's	4·15
St. Katherine's	5
Corpus and St. Benet's Church	5 20
Pembroke	6
Peterhouse and Little St. Mary's Church	6·30
Tea	7
Depart for London	7·53
Arrive in London	9·10

Those members who have not sent in their names to Mr. Leverton must be at the station by 8·30.

Purity of Sand.—Herr Lieven has called attention in *Dingler's Journal* to the fact that the presence of turf or humus in sand used for the preparation of cement mortar completely prevents hardening. A mortar thus prepared has no resistance, remains quite soft, has a saponaceous touch, and displays brown exudations, resembling a kind of jelly. He calls attention to the absolute necessity of seeing that sand is free not only from clay, but also from organic substances.


A corner of the Green
Court Stowell
Park Gloster
John Belcher
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1901

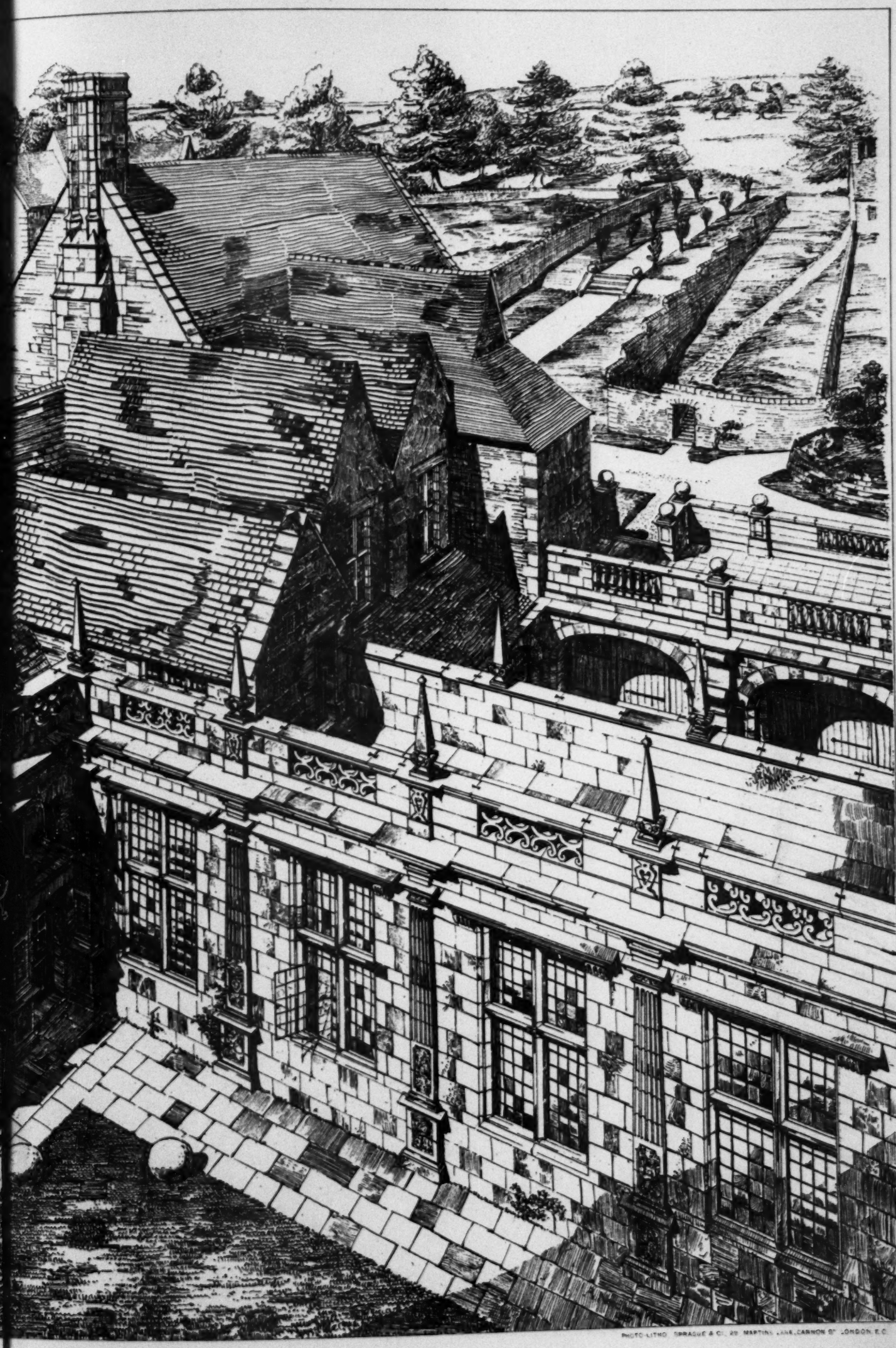
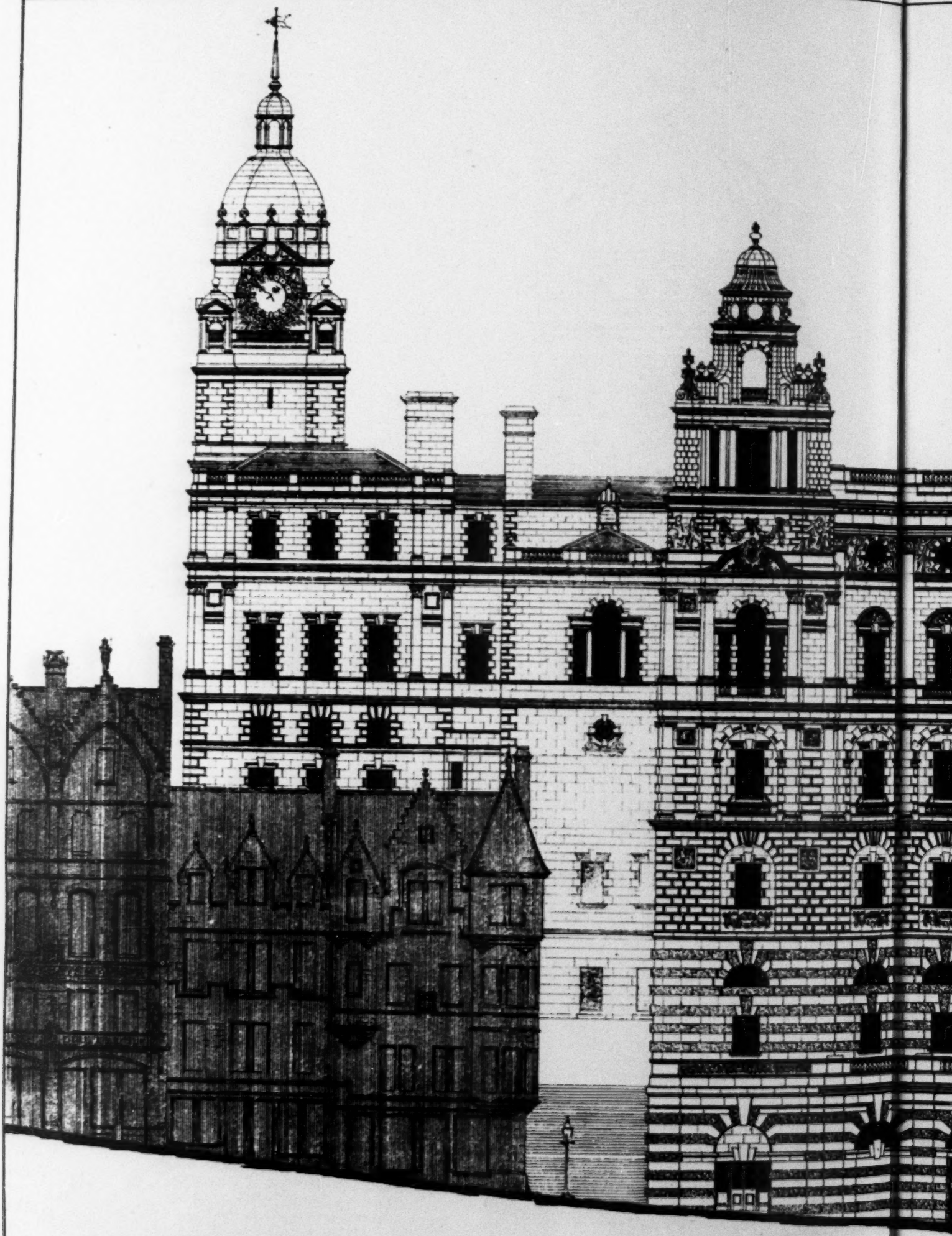


PHOTO-LITHO SPRAGUE & Co. 29 MARTIN'S LANE, CANNON ST. LONDON E.C.



NORTH OR COCKBURN STREET ELEVATION.

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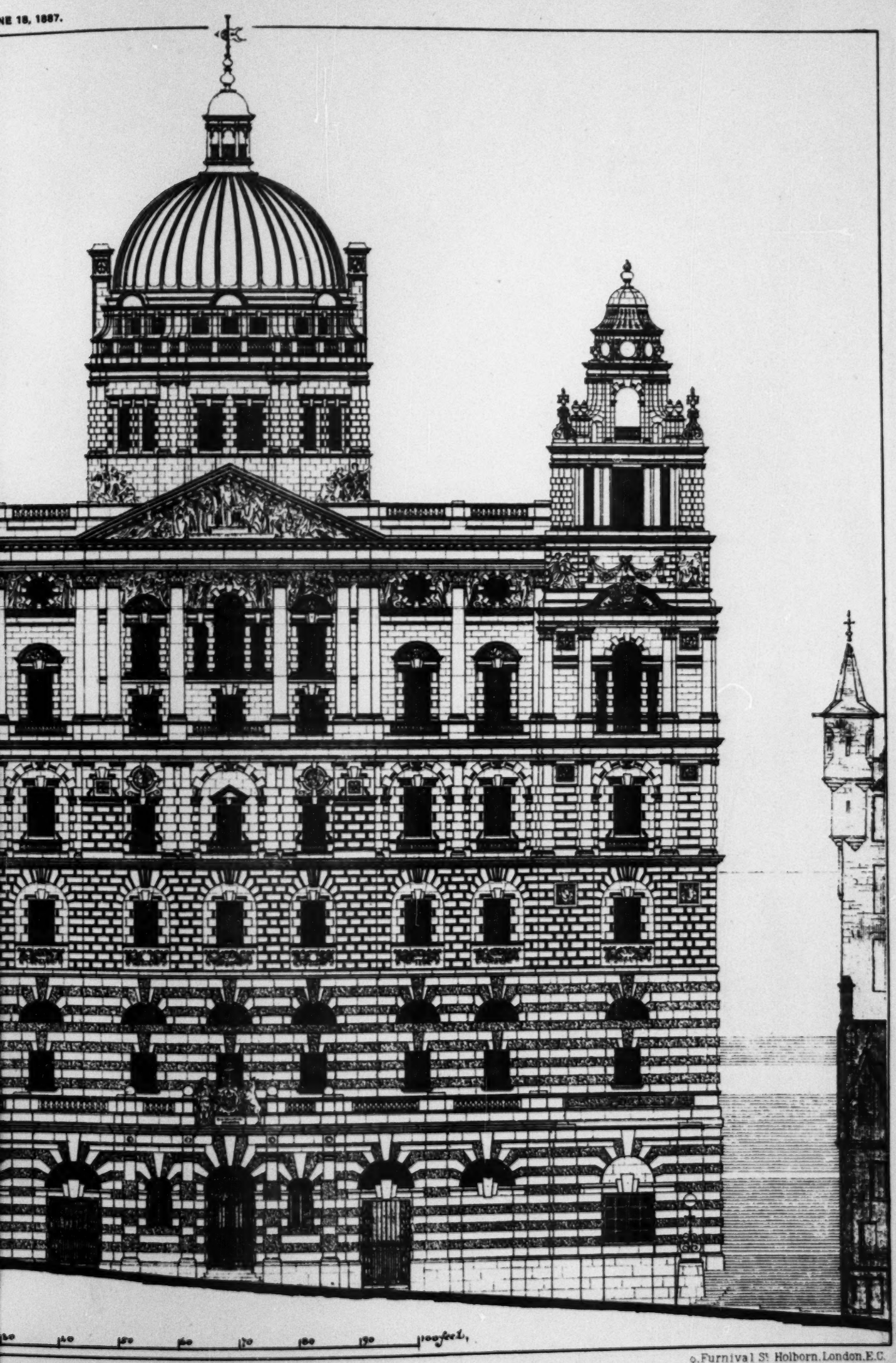
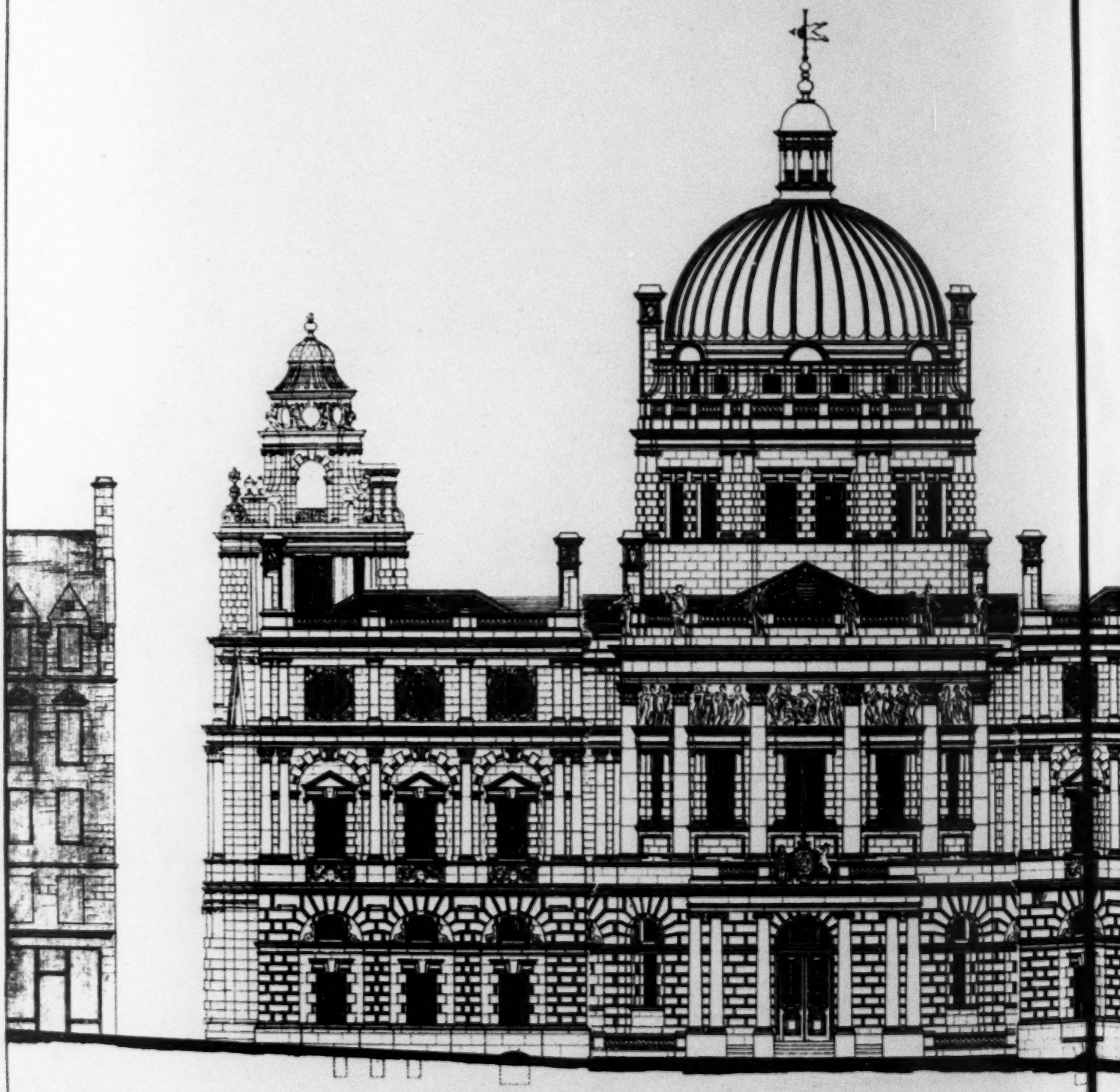
EDINBURGH MUNICIPAL BUILDINGS; DESIGN "FOR



" FORTUNA."—By Mr. J. M. Brydon, F.R.I.B.A.

9, Furnival St Holborn, London, E.C.



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SOUTH OR HIGH STREET

0 10 20 30 40 50

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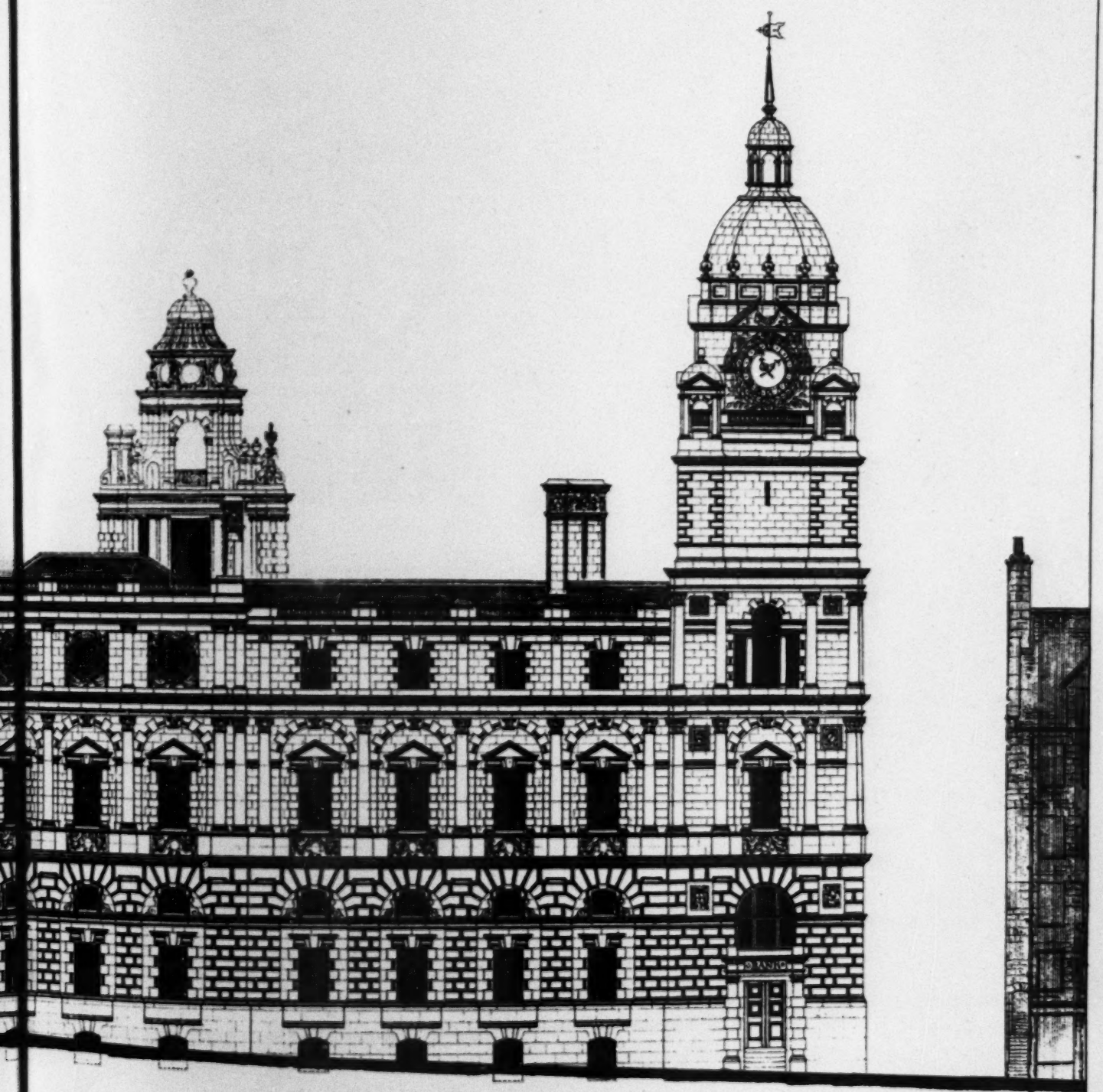
EDINBURGH MUNICIPAL BUILDINGS; DESIGN "

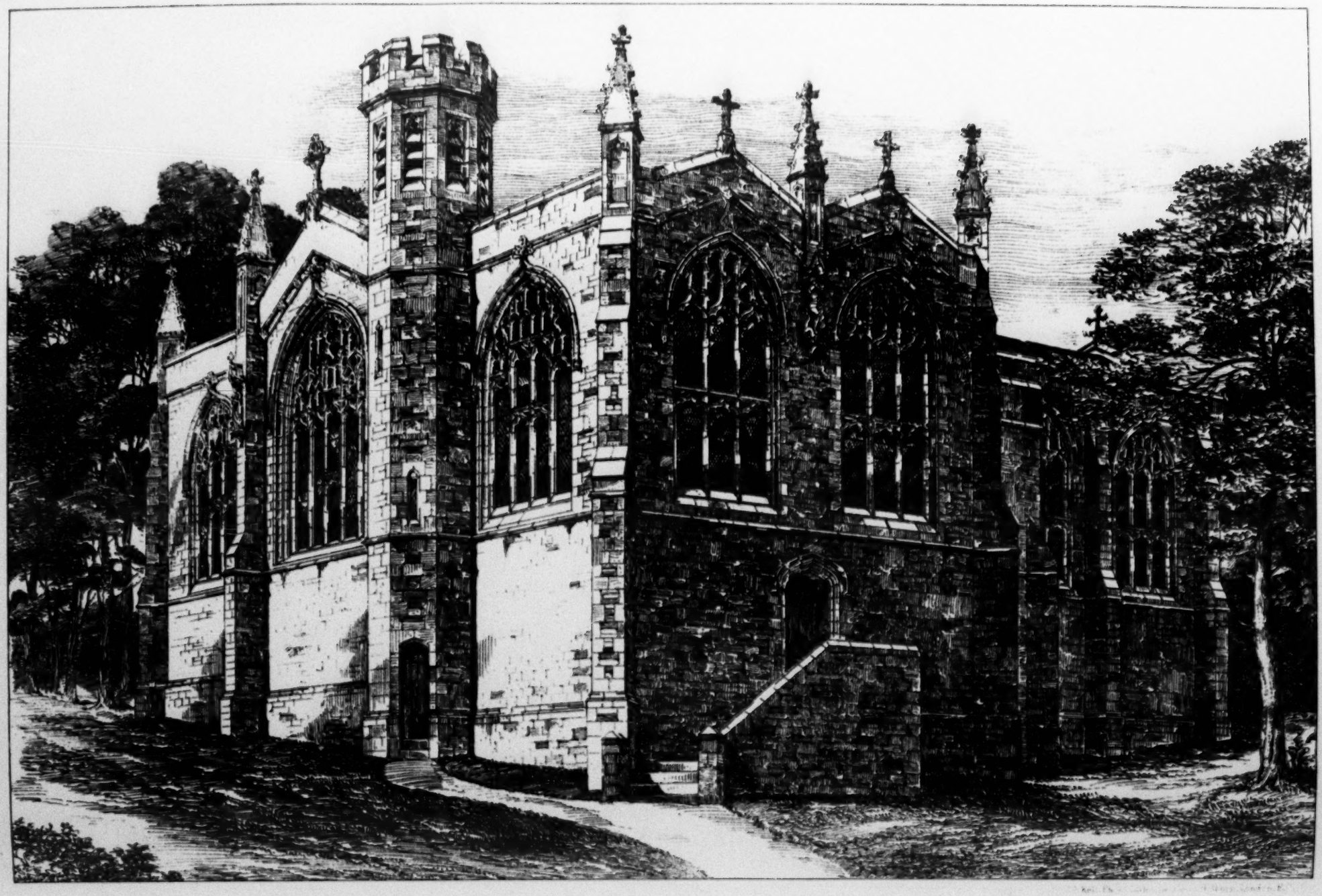


STREET ELEVATION.

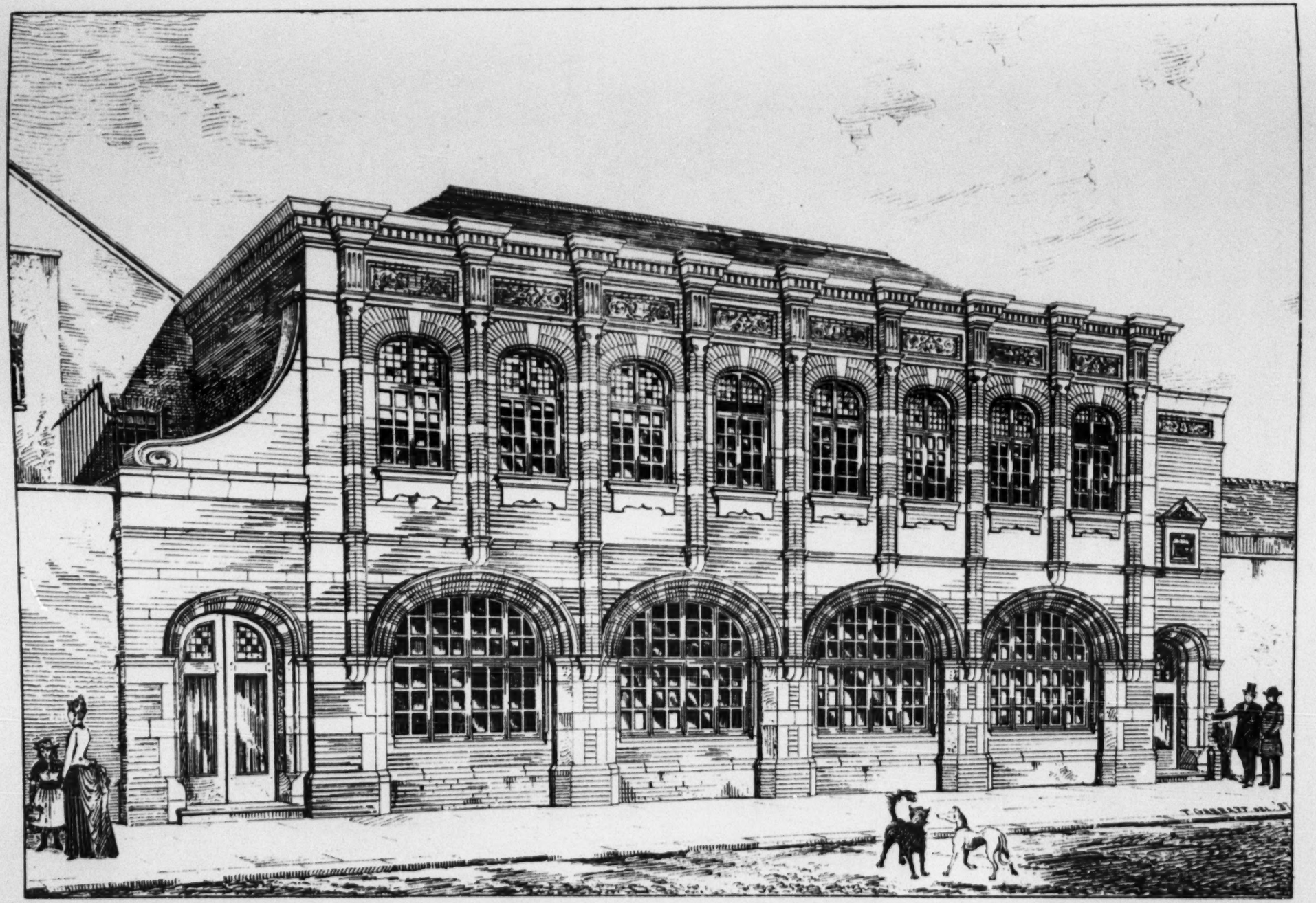
0 10 20 30 40 50 100 feet.

8, Furnival St. Holborn, London, E.C.

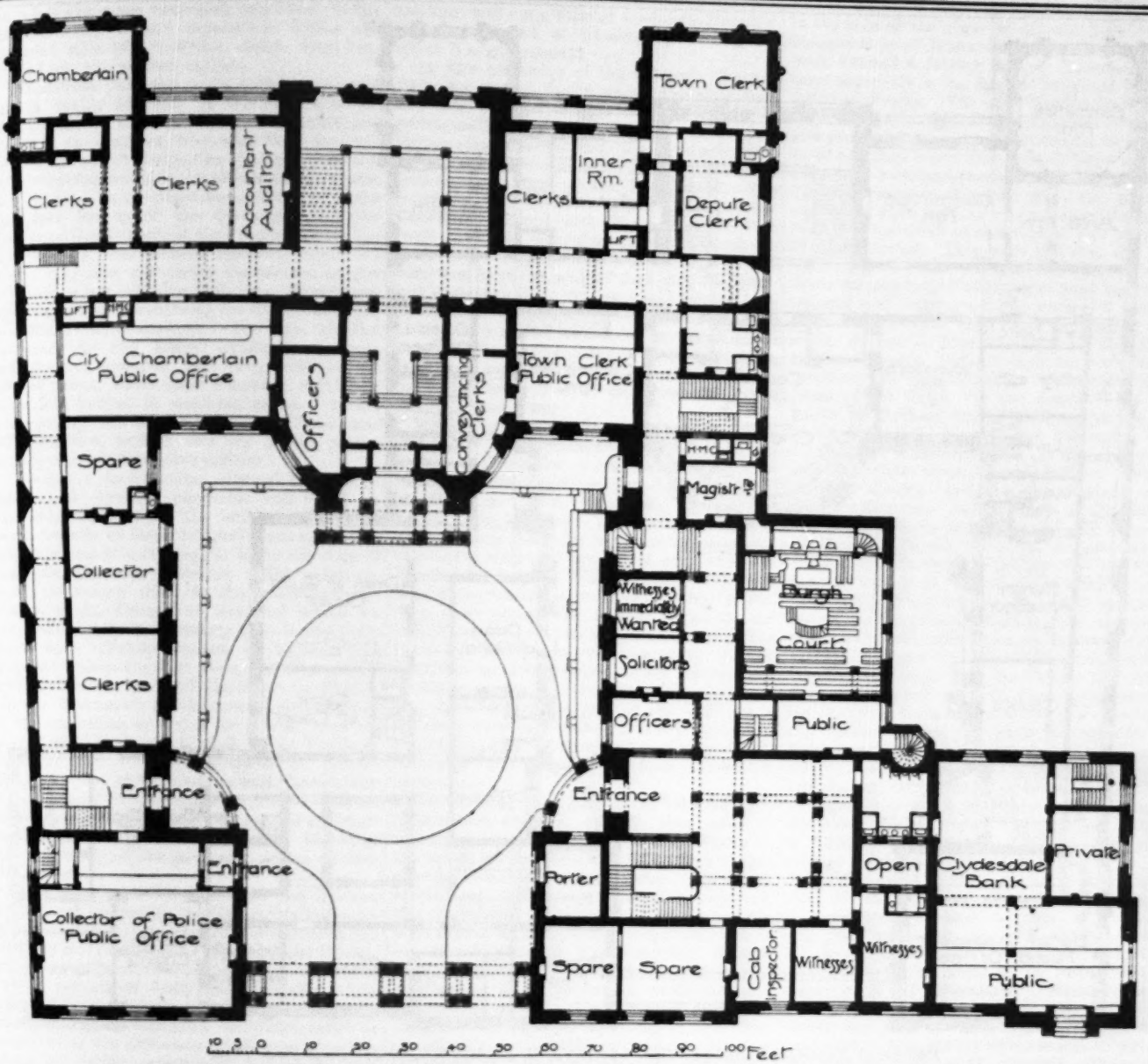
"FORTUNA."—BY MR. J. M. BRYDON, F.R.I.B.A.



CHURCH OF ST VINCENT DE PAUL, MILL HILL.—Mr. Francis W. Tasker, A.R.I.B.A., Architect.



BRYANSTON WORKING MEN'S CLUB, BROADLEY STREET, MARYLEBONE, W.—MR. G. HUBBARD, ARCHITECT.



Edinburgh Municipal Buildings: Design by Mr. J. M. Brydon, F.R.I.B.A.—Ground-Floor Plan. (*For First-Floor Plan, see next page.*)

Illustrations.

CLOISTER BUILDINGS, STOWELL PARK.

THE buildings illustrated are a small portion of the works now in course of erection, and consist of a vaulted cloister which will connect the old mansion with the banqueting-hall. At the end of the cloister is a staircase leading to the gallery that opens into the hall on the upper level. The view also shows the passage under the terrace communicating with the offices and kitchen, a serving-stair giving access to the transept of the hall.

EDINBURGH MUNICIPAL BUILDINGS COMPETITION.

WE give this week illustrations of the Classic design submitted in this important competition by Mr. Brydon, under motto "Fortuna"; including the north and south elevations and two of the plans. The lofty elevation from Cockburn-street has been very boldly treated with massive rustication, and the plan has a great deal to recommend it. Whether the manner of providing light for the rooms below the ground-floor on the inner court, by areas, and keeping the main area of the court up to the High-street level, is one to be recommended may, however, be a question.

ST. VINCENT DE PAUL, MILL HILL, HENDON.

THIS chapel is in course of erection for the Sisters of Charity of St. Vincent de Paul, who have recently purchased a property at Mil Hill, upon which is a fine old house dating from the time of Charles II., and which is now the "Mother House" for the sisters of this religious community in England.

The materials used in the church are Kentish rag stone, with Stoke-ground stone dressings for the external work, and Bath stone for the inside. Teak will be used for the floors.

Mr. C. Wall, of Chelsea, is the builder; Mr. Francis W. Tasker being the architect.

BRYANSTON CLUB.

WE give this week a perspective view of the Bryanston Working Men's Club, now in course of erection. The elevation to Broadley-street is in red brick with Bath stone dressings, the other elevations to Lisson-grove and St. John's-place are in stock brick and red brick dressings.

The hall on the ground-floor will hold between 250 and 300 people, and can, when occasion requires, be divided into two rooms by lowering a revolving shutter in the centre of the hall. The floor over the lecture-hall is entirely occupied by a billiard-room, and the remainder of the site and the upper floors are given up to the usual requirements of a club, with the exception of the plot facing St. John's-place, and here some flats are being erected. The total cost of the club, including the flats, is about 5,000*l*., and the contract is in the hands of Messrs. A. & E. Braid, the architect being Mr. George Hubbard.

Buildings for Applied Science Teaching. Messrs. Whittaker & Co. will publish early next week Mr. E. C. Robins's book on "The Design and Construction of Applied Science and Art Buildings, and their Suitable Fittings and Sanitation."

THE ARCHITECTURE OF DALMATIA.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE concluding meeting of the present session took place on Monday last, Mr. Alfred Waterhouse, R.A. (Vice-President), in the chair.

Mr. William H. White (Secretary) announced the receipt of a large number of books and "Transactions" of other societies, the titles of which would be published in the Proceedings; also the receipt of two guineas each from Mr. F. E. Jones and Mr. W. S. Weatherley, Fellows, for the Library Fund. A further donation, through Mr. Aitchison, was announced from Signor Boni, of Venice, of his pamphlet on "Santa Maria dei Miracoli," and sixty photographs of the church.

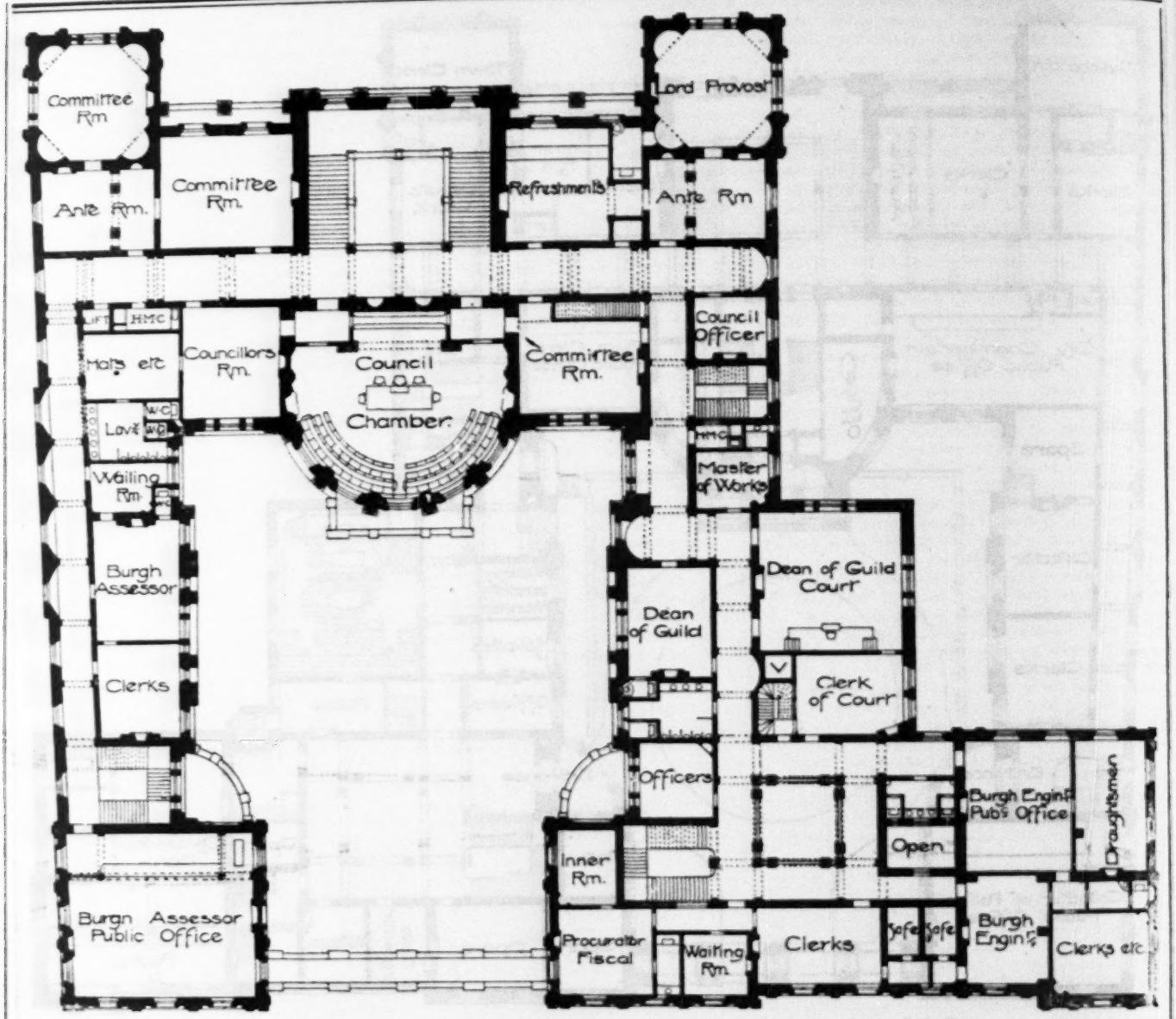
Votes of thanks were passed to the several donors, a special vote being accorded to Signor Boni, on the motion of Mr. Octavius Hansard.

Mr. J. Macvicar Anderson (Hon. Secretary) read a letter from Lady Jones, thanking the Institute for its vote of condolence with her on the occasion of the death of her husband, the late Sir Horace Jones.

The following gentlemen were balloted for and declared to be duly elected, viz., as a *Fellow*: Mr. William C. Evans, of Westminster; as *Associates*: Messrs. Herbert Winkler Wills, Hampstead; Charles Gourlay, Glasgow; Joseph Lavender, Wolverhampton; and Thomas Locke Worthington, Hampstead.

The Secretary intimated that the name of Mr. Benjamin Ingelow had been recommended to be added to the Literature Standing Committee.

The Chairman, in introducing the lecturer for the evening, spoke of him as not only being a most distinguished architect, to whom Oxford owed many of its recent beauties, but also an explorer of a region which seemed hitherto to



Edinburgh Municipal Buildings: Design by Mr. J. M. Brydon, F.R.I.B.A.—First-Floor Plan.

have been much neglected both by the architect and archæologist.

Mr. T. G. Jackson, M.A., F.S.A., then read a paper on "The Art of Dalmatia," of which the following is an abstract:—

Dalmatia consists of a narrow strip of rock and moorland lying between the mountains and the sea on the eastern side of the Adriatic. Its geographical position has always given it considerable maritime importance; while the interior, which is comparatively poor and unproductive, remained in a condition of neglect and semi-barbarism, the cities of the sea coast prospered commercially, and attained a high degree of civilisation. The architecture of Dalmatia is therefore entirely urban, and though under the Roman Empire there were a few flourishing cities in the interior with buildings of some pretensions to magnificence, during the Middle Ages it was only in the maritime cities that the arts and letters continued to be cultivated.

The series of Dalmatian examples may be said to begin with Diocletian's palace at Spalato, which dates from the end of the third century. The importance of this building in the history of architecture can scarcely be over estimated. It stands at the meeting-point of the styles of ancient and modern Europe, and marks the period when the strict rules of Classic architecture began to be relaxed, and the various members of the order were for the first time treated with something of the freedom of Mediæval architecture. The proportions of the various members of the entablature were altered without scruple; some parts hitherto considered essential were left out altogether; fresh ornaments, like the zigzag of the coming Romanesque style, first appeared; entablatures were made to spring into arches; and, finally, by the omission of frieze and cornice, the architrave was left alone to spring from column to column without any intervening entablature, thus marking the final emancipation of the arch from the traditional forms of trabeated architecture.

To balance these signs of architectural life and progress, for thus they must be considered by all who look at the matter historically, we find in Diocletian's work some signs of the coming barbarism of the succeeding centuries. The ornament is coarsely executed, the mouldings are inartistically profiled, and in more than one instance materials of older buildings are used up second-hand in the manner which became so general a few centuries later.

In plan the palace was like the Roman camp, square or nearly so, and divided by two cross streets into quarters, except that on the south side the street did not run through, being intercepted by the Imperial apartments. Though the greater part of its area is thickly covered by houses with narrow alleys meandering among them, the outer circuit of the walls, the two temples, the peristyle court in the middle of the palace, and two of the three principal gates remain to this day; and there is no place in the world which presents a better picture of the magnificence with which the masters of the Roman world housed themselves.

The principal temple, now the Duomo of Spalato, which has by some been supposed to be the mausoleum of Diocletian, though all tradition makes it originally a temple of Jupiter, is octagonal without and round within, and is covered by a dome of brick, above which is a pyramidal roof. The cella is surrounded externally by a Corinthian peristyle, and internally by two orders of eight columns which carry projections of the entablature. Between these columns are four square recesses alternating with four semicircular niches.

The other temple, generally said to have been dedicated originally to Æsculapius, has by some modern writers been in its turn supposed to have been the mausoleum of Diocletian. It consists of a small rectangular cell, with a portico of four columns, and is covered with a wagon ceiling, which forms also the roof, the rounded surface being exposed externally, though, strange to say, it finished at each end with the ordinary triangular pediment of a Classic temple.

These two buildings, from first to last, exercised a remarkable, though very natural, influence on the imagination of Dalmatian architects, which may often be traced in the plan and design of the buildings raised in the country during the Middle Ages.

Of Dalmatian architecture, during the following five centuries, no building has survived the disasters of the barbarian conquest, and to complete the sequence of examples we must look to the neighbouring coast-cities of Istria and Friuli, where at Parenzo and Grado may still be seen Byzantine basilicas resembling and rivalling the co-eval churches of Ravenna.

The only building in Dalmatia belonging to this period of which we have any traces is the half-excavated basilica of Salona, which suffices to show that the Byzantine style established itself as firmly in Dalmatia as in other countries which owed allegiance to the Emperor of New Rome.

In the seventh century Dalmatia was overrun by hordes of Goths, Avars, and Slavs, and one by one the ancient Roman cities were taken, sacked, and destroyed. But the Roman population was not crushed out of existence. When the shock was over the fugitive citizens came back from their island hiding-places and either rebuilt their old cities or founded new ones. Zara rose from her ashes, the fugitives from Epidaurus settled on a rock near their old home and founded the city of Ragusa, and the Salonitans, leaving their ancient city in ruins,

as it has ever since remained, crept back to the mainland and housed themselves within the deserted villa of Diocletian, which they converted into the modern Spalato.

Henceforth Dalmatia had a double population and a double history. In the rural districts were the Slavs, Croats in the northern part, and Serbs in the southern, who, with their countrymen over the old Dalmatian border, gradually were consolidated into the kingdoms of Croatia and Servia. In the maritime cities and on the principal islands of the Quarnero were the Latins or Romans, or, as they came to be called distinctively, Dalmatians, speaking their old Latin language, governing themselves by the old Roman law, electing their own magistrates and bishops, and preserving the traditions of the old Roman municipalities. The city, at first tributary to the Slavs, gradually became wealthy and powerful, and progressed in the arts of peace, while their Slavonic neighbours were left behind in semi-barbarism. To the present day the old distinction of Latin and Slav survives, and is the key to the proper intelligence of Dalmatian politics.

Dalmatian architecture during the ninth, tenth, and eleventh centuries was based on Byzantine models, but the buildings that have come down to us from that period are so humble and rude that it is impossible to fix the date of each example with precision. The most remarkable among them is the grand circular church of St. Donato at Zara, of which we know with tolerable certainty that it was built about 800. Bishop Donato, its builder, had travelled widely for that time, and had visited both Constantinople and the Court of Charlemagne. The result of his travels may be traced in the resemblance which in a rude way his church at Zara bears to that of St. Vitale at Ravenna, and to the Cathedral of Aix-la-Chapelle. One of the most singular facts about the church of St. Donato is connected with its foundations, which consist of splendid architectural fragments of ancient Roman buildings laid confusedly on the pavement of an ancient Roman forum.

The connexion of Dalmatia with the Eastern Empire was broken by the Hungarian conquest of 1105. From that date the possession of the province was contested by Hungary and Venice, and the architecture was thenceforward based on the schools of Italy and Germany. The traces of Northern feeling which can be detected in many of the Dalmatian buildings, must be explained by the influence of Hungarian rule, which no doubt introduced architects from Austria and other countries of Central and Western Europe into the dependent provinces.

The art of Dalmatia, then, passed at this time from Byzantine to Romanesque, and the earliest examples of the new style are to be found in the Benedictine nunnery of St. Maria at Zara, and in the island city of Arbe. In point of design and execution they will compare favourably with the coeval work of any other European school.

Perhaps the most remarkable feature of the history of architecture in Dalmatia is the long duration of the Romanesque style in that country. In France and England, round-arched gave way to pointed architecture at the end of the twelfth century; in Germany, Romanesque began to give place to Gothic about the middle of the thirteenth, and Italian Gothic reached its full development about the same time; but in Dalmatia architects went on working contentedly in Romanesque well into the fourteenth century, as if they had never heard of any other style, and examples of it are not wanting even as late as the fifteenth.

The finest church in the thirteenth century in Dalmatia is the Duomo of Trau, which, though dating for the most part from 1200–1250, is thoroughly Romanesque in style. It is also remarkable for its close resemblance in many points to contemporary architecture in Hungary, thus affording another instance of the influence of the trans-Alpine styles to which I have above referred. The west doorway of this church is the crowning glory of Dalmatian architecture, and the wooden doors, choir-stalls, and marble pulpit of the cathedral at Spalato, which belong to the same period, are not less beautiful in their design than they are perfect in execution.

The greatest work of Dalmatian architecture in the fourteenth century is the campanile of the Duomo of Spalato, which was built in instalments between the years 1300–1416, but is from first to last in the Romanesque style, and has borrowed not a little of its details from the late Roman work of Diocletian's building by which it is surrounded.

At the beginning of the fifteenth century Dalmatia passed finally under Venetian rule, and the political change was marked by a corresponding transition in the architecture, though Romanesque had thus actually prolonged its existence till it met the new round-arched style of the Renaissance. The Gothic style which succeeded, and which the Venetians brought with them, never rooted itself firmly in Dalmatia except in domestic work. The only great Gothic church is the duomo of Sebenico, and of that only the lower part is in that style, the rest being finished by a Renaissance architect. But the most beautiful Gothic work in Dalmatia is to be found in the palace of the rectors of the republic of Ragusa, which was begun in 1435. The sculpture of this building is scarcely to be surpassed within the range of Gothic art.

But the reign of the Gothic style in Dalmatia was short. The Dalmatians, it would seem, had a natural liking for a round-arched style, in which we may, perhaps, trace the influence exercised on them from first to last by Diocletian's buildings at Spalato. Consequently, they welcomed with almost precocious ardour the return of the round arch when the Renaissance brought it about, and if they were behind the rest of the world in adopting Gothic, they were among the earliest to adopt the Renaissance. In 1441 the latter part of the Cathedral of Sebenico was begun by Giorgio Orsini in an eclectic style, which became less Gothic and more Classic as the work advanced. The most remarkable part of this building is the stone covering,—ceiling and roof in one,—a stupendous effort of daring construction, which makes this church one of the most remarkable in Europe.

But though the Dalmatians adopted the Renaissance style so readily, they used it throughout with a freedom that had more of the spirit of the older Gothic art than of that slavish obedience to formula which the severer masters of the Classic Renaissance exacted. The Dalmatian Renaissance work is eclectic from first to last, and Gothic and Classic details are found strangely mixed together, though they are happily combined with a true artistic instinct, so as to produce a consistent and harmonious whole. The Renaissance art in Dalmatia continued, as it had begun, free from the shackles of a rigid formalism. It never developed, as it did in Italy, into pure Palladianism. Of the cold, severe architecture of that school there is hardly an example to be found throughout the province; something of the wild freedom and playfulness of Gothic clung to it from first to last, till in the latter part of the seventeenth century it suddenly sank into the slough of the Barocco, in which all its life and beauty was at once smothered, and architecture as a fine art ceased to exist.

Mr. William Emerson, in opening the discussion, expressed the pleasure Mr. Jackson's paper had given him. It was well in these days of going to-and-fro in the earth occasionally to bring forward specimens of the architecture of other countries, tending, as it did, to enlarge the mind, for English architects, as a rule, ran too much in a groove. Many swore simply by fourteenth-century architecture, and others by Classic, but it seemed to him that the particular style,—the transition between Classic and Gothic,—was the starting-point of what was to be the future architecture of this country. He moved a vote of thanks to Mr. Jackson.

Prof. Baldwin Brown (Edinburgh) seconded the vote of thanks, and said that the paper they had just heard was an exceedingly valuable one in the study of architecture, and for the way in which it showed the relation between the different styles that had succeeded each other since the period of the Roman Empire. It was interesting to see how very close was the contact in Dalmatia between the early round-arched architecture of the Romans and the later arched architecture of the Renaissance; how little influence the Gothic had towards the south, and how closely in many features the Renaissance was to the earlier architecture. Mr. Jackson, in his description of Diocletian's palace, had brought before them the fact that the Classical architecture of the Romans embodied more variety of plan than they had often been given credit for. In the case of the tower, which was sometimes thought to be of Teutonic origin, the old Roman work showed a feeling in that direction, and more especially in the Roman buildings in the South of France. The early Basilica built over the cemetery, to which Mr. Jackson had referred, was extremely interesting. It looked as if the small buildings above the ground, built on the plan, were memorial chapels over the tombs of Christian saints. Possibly, also, the apsidal end in the main building was a memorial chapel built over the tomb of some saint and martyr at a later period. They were told that the old basilicas grew out of the memorial chapels, and it was curious to find what might have been the original wall cutting off the memorial chapel remaining when the nave aisles were added.

Mr. Arthur J. Evans (Keeper of the Ashmolean Museum, Oxford) said he could bear testimony to the extremely exhaustive character of the paper. In the course of his remarks Mr. Jackson had alluded to the way in which Dalmatian history had influenced the architecture of that country. It was a remarkable fact that Dalmatia was the one Roman province divided between the Eastern and Western Empires. In the palace of Diocletian was to be seen, on the one hand, the form of the Roman "Chester." In the massive architecture could be seen the influence of the West and the genius of Rome, while many details, there could be little doubt, had been borrowed from some other favoured cities of the same empire in Asia, such as Palmyra, the masons' marks being of the same character. The whole country between the Alps and the Euxine had been deluged again and again by barbaric invasions, but Dalmatia remained a flourishing province, and became one of the great strongholds of Roman civilisation. It was thus capable, not only of sheltering civilisation within its limits, but also of influencing the border countries. In Dalmatia some of the latest of the Roman Emperors took refuge, and in the palace of Diocletian the last Western Emperor reigned after he had ceased to reign in Italy. The rocks of Dalmatia were so favourable to the practice of architecture that the country produced a race of masons who had much to do with the buildings of the opposite coast of the Adriatic, and remarkable traces were to be found of the employment of Dalmatian architects and masons in Italy. At a later date Dalmatia shared the fate of other provinces, and was subjected to the variety of influences to which Mr. Jackson had called attention,—Croatian, Carlovingian, and Byzantine. Later still there were influences besides the Hungarian. In following the eastern coast of Italy, from Ancona southwards, striking parallels were to be found between the architectural details of the buildings on the opposite coasts, and in looking at the admirable drawings on the screens one was struck with a feeling of melancholy by the fact that the civilisation which was spreading over the mainland behind Dalmatia had been cut short in its development. The architecture was in its origin the work of the surviving Roman provincials, but in the Middle Ages it became to a great extent the work of the Slavonic inhabitants of Dalmatia who had received Roman culture. All that, however, was cut short, and many of the monuments, such as the Church of Ragusa, were destroyed by the great earthquake. They might congratulate Mr. Jackson on having apparently reached the termination of his great work on Dalmatian architecture, and as in the seventeenth century an Englishman was one of the first who had brought a knowledge of Dalmatian art to the West, as in the eighteenth century another Englishman executed his great work on the palace of Diocletian at Spalato, so now the most important work in Dalmatian architecture had been undertaken by an Englishman.

Mr. J. P. Seddon tendered his extreme thanks to Mr. Jackson for his most admirable paper, which had opened up new ground. He only hoped that the excellent drawings he saw around the room would be left for a few days, so that the members might examine them at their leisure. The development of Roman architecture was most interesting and instructive, and particularly as showing that when the Dalmatians found a good style, they knew how to keep it. At the same time he hoped it would be looked at in an archæological light, and that it would not be studied with the view suggested by Mr. Emerson, as that would be deplorable. If they were

in search of a new style, as many now appeared to be, they should not go to a country which had passed through such a history as Dalmatia had, and be content with its work.

Mr. H. H. Statham said he thought the members owed a great deal to Mr. Jackson for having been a pioneer in an almost unknown district, or one, at least, which very few had an opportunity of visiting. There was one point which had struck him. In the drawing of the interior of the Duomo at Curzola he noticed the same phenomenon which was to be observed in the Yorkshire abbeys, of the pointed arch being used in the arcading of the nave and the round arch in the triforium. Was that to be accounted for in the same way as in England, viz., the employment of the pointed arch for constructional reasons, and the retention of the round arch because of its supposed better appearance? The only regret he had in listening to the paper was that it should have been written by one who was not a member of their body, a drawback, let them hope, which would soon be remedied. (Hear, hear.)

Mr. George Aitchison, A.R.A., wished to ask Mr. Jackson a few questions. He was interested in the drawings of the Temple of Jupiter belonging to the palace of Diocletian. The plaster which had only been partially stripped off the dome in Adam's time, seemed now to permit an inspection of the construction of the dome. He did not know whether Mr. Jackson had the opportunity of seeing how the dome was finished at its centre. In one of the churches at Ragusa, so charmingly vaulted with circular ribs and slabs of stone, he did not know whether Mr. Jackson had had an opportunity of knowing if the long flat stones were jointed, or whether they were entirely in the vaults. In the Temple of Diana at Nismes, the church was vaulted in a similar manner, but the stones seemed to be rabetted out like the Gothic ribs. One of Mr. Jackson's remarks was extremely true, viz., that in large and important towns, where the architects were mostly confined to the examples of that town, they were almost certain to be reproduced, and to give a strong mark to the architecture of the place.

Mr. F. Percival said they had been told that the Campanile at Spalato was covered with scaffolding. When he (the speaker) was there, it was one mass of scaffolding inside, and he would be glad to know if the main features of the building had not been in any way injured.

Mr. Ralph Nevill remarked that it was rather the fashion to ascribe every peculiar development to Teutonic influence, but in the case of Dalmatia that influence seemed to have been slight. If Mr. Emerson thought of introducing a new style of Dalmatian art it was to be hoped he would give it an English feeling, just as the Renaissance architects did when they introduced the art from abroad.

Mr. Emerson.—I did not suggest copying this exactly.

The vote of thanks was then put and carried by acclamation.

Mr. Jackson, in replying, said the drawings could remain for inspection for a few days. Professor Baldwin Brown had suggested that the apse and curious wall of the basilica at Salona might be part of an older church. The impression he had derived was that that was not the case, but that the oldest parts of the groups of buildings were some of the outside chapels. The few architectural features of the apse pointed to its belonging to a later rather than to an earlier period. Mr. Statham had referred to the mixture of pointed and round arches. In one building the nave arches were pointed, cut square through the wall without any moulding, and with a slight moulding outside. That was in a church which showed the Northern influence, because it had a triforium and distinct clear-story, the triforium arches being round. In that they saw an instance of the eclecticism which ran through the Dalmatian styles. Mr. Aitchison had raised a point about the dome. The interior of the church being entirely filled with scaffolding, he and a professor of Spalato had examined the dome, and had come to the conclusion that there was no evidence of the "eye." As to the jointing of the slabs, the construction of them was more like carpentry than anything else. Every bay and pillar had a strong marble rib spanning the church, and those being rabetted received slabs of marble reaching the whole length of the nave in one piece. The restoration of the dome at Spalato was a sad story. A great deal of the work was much decayed and broken, such as the capitals, carving, corners, and entablatures generally. All the capitals of the lower tower had been restored, but the greater part of the entablature of the lower tower, and nearly all the entablature and the eight capitals of the upper order, had been renewed. There was no doubt that a great deal more had been done than was necessary. The meeting might be congratulated on the presence of Mr. Arthur Evans, than whom no one was entitled to be listened to with more respect when dealing with Dalmatia. The point touched upon by Mr. Evans, as to the work of Slavonic artists was a very interesting one. The names of several Dalmatian architects had been preserved, and those of the architects who constructed the doors at Spalato and Ione were undoubtedly Slavonic. Those Slavonic artists were men who had been brought within range of the culture of the Latin cities, and their work had no distinctive character, but was like the work of the Latins themselves. That showed that the Serbs only required peace and tranquillity to develope the arts. With regard to the use that might be made of the study of Dalmatian art, there was nothing to be directly copied, nor did he think that was the proper way to use any style of art. But he did think that a great deal was to be learned from Dalmatian architecture in another way. In it could be seen, from first to last, the correspondence between the art and history of the country; indeed, he did not know another country in which that could be more distinctly traced. Then, again, they might notice the curiously eclectic way in which the Dalmatians had worked from the beginning, and how new forms and departures were constantly breaking in upon the purity of the existing style. Such innovations the purists of the time might call barbarisms, but, looking back on the works of those periods, people could now-a-days see how far they were from being barbaric. They were, in fact, the germs of new life, and ought to give hope in regard to the work of the present day. A great deal of work was being done now which would shock the purists, but when people looked back upon these things they would be able to trace all its singularities, as they were termed, as germs of the future life to which he hoped their art in time would attain.

THE SOCIETY OF ENGINEERS:

VISIT TO MESSRS. AVELING & PORTER'S WORKS, ROCHESTER.

On Wednesday last a party of the Members and Associates of this Society, together with a number of friends, accepted the invitation of Messrs. Aveling & Porter, of Rochester, to visit their well-known steam road-roller and traction engine works at Rochester. The party included Professor Henry Robinson (President), Mr. A. T. Walmisley (vice-President), Professor Henry Adams, Mr. Perry F. Nursey, Mr. C. Gandon, Mr. J. Bernays, and Mr. Jabez Church (past-President), Mr. W. H. Lindsay, Mr. J. S. Tamburini, Mr. R. L. Andrews, Mr. Philip Cheek, Mr. R. Masefield, Mr. E. J. Hesketh-Smith, Mr. Wilfrid Airy, M.A., Mr. G. Corderoy, Mr. Parker, and Herr Gustav Kemmann, Royal Prussian State Engineer. Proceeding by the 11·42 train from Charing-cross, in a saloon carriage, the visitors reached Strood Station shortly before half-past one, and immediately proceeded to Boley Hill House, the residence of Mr. Thomas Aveling, picturesquely situate overlooking the Castle keep and pleasure-grounds. These admirably-kept and pleasant gardens are a great boon to Rochester and to the many visitors to the time-worn but grand old Norman keep, and it must be a satisfaction to Mr. Thomas Aveling, the present head of the firm of Aveling & Porter, to know that his late father, Mr. Thomas Aveling, when mayor of the borough a few years ago, was able to gratify a long-cherished wish by setting on foot a movement which speedily resulted in securing the castle keep and grounds for the use of the town. The old keep, shattered as it has been by military attacks upon it, and still more seriously as it has suffered from being long used as a convenient quarry for building stone (the steps and newels of the staircases, for instance, having been totally carried away by former generations in this way), is now carefully guarded from injury; it is being preserved, in fact, without any attempt at "restoration," which would, of course, be entirely misplaced. With due care it is likely long to stand "four-square to all the winds that blow." Mr. Thomas Aveling and Mr. Stephen Aveling very kindly entertained the visitors to luncheon in a very pleasant apartment,—part ball-room, part meeting-room, and part play-room,—a temporary erection, in fact, half partaking of the nature of a tent, and capable of use for a variety of purposes, being cool, comfortable, and airy in the hottest weather. When not otherwise occupied, such an apartment as this, readily removable, forms an admirable music-room and play-room for children, and Mr. Thomas Aveling has, by the construction of this apartment, given a hint to occupiers of country houses which might often be found worth acting upon. Before leaving the luncheon-table, the President of the Society, Prof. Henry Robinson, expressed the indebtedness of the members and visitors to Messrs. Aveling for their entertainment.

Under the conduct of Messrs. Thomas and Stephen Aveling, the party then proceeded to inspect the extensive and very interesting workshops of the world-renowned firm of Aveling & Porter. We say "world-renowned" advisedly, for in these days of depression of trade, largely caused by foreign competition, and when lugubrious forecasts sometimes tend to make us apprehensive for the future of British industries, it is refreshing and reassuring to learn that in this one industry of the manufacture of traction engines and road-rolling engines, the productions of Messrs. Aveling & Porter hold the field everywhere. Even in the United States, where their engines are handicapped by the cost of freight (about £100 per engine) and by a protective import duty of 45 per cent., they command the market by sheer force of excellence of workmanship. That this should be the fact is no marvel to those who had the opportunity of inspecting Messrs. Aveling & Porter's busy hive of industry on Wednesday last. About 400 men are employed, and there are some hundreds of machine-tools of the most ingenious and powerful kind at work, many of them actuated by hydraulic power, on Tweddell's system. These machine-tools, which are all the latest and best of their kind, perform varied operations, such as shearing, rivetting, &c., and one very ingenious machine seen at work by the visitors was a hydraulic machine for bending, while hot, the massive steel crank-shafts of the engines. Steel is also used for the frames and boilers, and the best Low Moor iron for the fire-boxes. To use a building phrase, special care is taken to "set-out" the work connected with each engine, so that when the parts are put together there shall be no rivet-holes or bolt-holes which do not precisely coincide, and therefore no inequalities of strain. In like manner means are taken to prevent unevenness of bearing, thus reducing irregularities of wear to a minimum. By prolonging the side-plates of the firebox upwards, brackets for carrying the working parts of the engine are formed without the necessity of bolting them to the boiler, thereby relieving the boiler of external strains and, of course, conducing to the longevity of the whole machine. In the foundry the visitors were in time to witness the casting of one or two of the heavy wheels or rollers for road-rolling engines. These wheels, it may be interesting to note, are, in order to ensure good work, cast with a margin of 2 in. or 3 in. of metal on each side of the ultimate edge of the periphery, these margins being afterwards taken off by a very simple but large machine of the lathe type. The casting to be operated upon being fixed on a gigantic chuck or holder, and caused to revolve slowly, fixed cutters are brought to bear, one inside the periphery and one outside it, the superfluous and always more or less doubtful metal from the edge of the casting being thus readily though somewhat slowly removed. It was incidentally stated that the capacity of the works is equal to the turning out of one road-rolling or traction engine per day,—everything being made at Messrs. Aveling & Porter's works except the steam gauges. There are, we were informed, about 3,000 traction engines and road-rolling engines by this firm in use, and of this number about seventy are road-rolling engines used in London. It is stated that whereas a well-known firm of building contractors estimate the cost of con-

veyance of heavy materials on common roads by horse traction at 10d. per ton per mile, the cost of the haulage of such materials by traction engines is only from 2½d. to 5d. per ton per mile. Before they left the works, the visitors witnessed trials of several traction engines recently completed. One of them was a large traction engine which is about to be sent to Bordeaux to be used in pulling a deep-running plough, going from 21 in. to 24 in. deep in the soil, through some vineyards of that part of France, in which deep ploughing is a necessity. Another type of engine tested was a traction-engine with double-tired spring wheels of large diameter, this type of engine being that most favoured by the dockyard and military authorities.

After thanking Messrs. Aveling for their kindness in showing them over the works, the visitors proceeded to the top of the keep of Rochester Castle, under the guidance of Mr. Stephen Aveling, and some of them afterwards proceeded to the Cathedral. Thus the afternoon was devoted half to engineering and half to archæology. After dining together at the Bull Hotel, Rochester, Prof. Henry Robinson in the chair, the party returned to Town by the 8·20 p.m. train from Strood Station, after spending a very pleasant and instructive afternoon.

SOCIETY FOR THE PROTECTION OF ANCIENT BUILDINGS.

IN the tenth annual report of this Society, presented at the annual meeting, held last week in Staple Inn Hall, as mentioned in our last, it is stated that though, during the past year it has not had the fortune to gain any impressive triumphs in helping to preserve buildings of the first rank, the Society has yet met with much success, while its failures are a proof of how urgently its efforts are still needed. The report proceeds: "If the cases in which we are able to report definite results are not so many or so important as could be wished, it should be borne in mind that the Committee work earnestly nearly every week in the year for the cause of the Society, and that much of the good result of this labour cannot find its way into print. It is no light thing to aim at changing the sentiment of the educated part of the nation, even within the narrow limits in which we are attempting to do so. That we have to a great measure succeeded, the altered tone of some of our critics and the press generally gives us ground for believing, and we are not infrequently pleased at hearing echoes of our own arguments and our own sentiment. Our work cannot, however, be effectively continued without the hearty support of our members. The balance-sheet at the end of this report will show the pressing need there is of our funds being increased; and this increase ought to be made by the subscriptions of new members. . . . . The chief work before the Society has always been to bring architects and the clergy to understand our point of view and to act accordingly. We wish them to have a full appreciation of good buildings, both old and new. In writing to the Committee, a correspondent says, towards the end of his letter,—'There is little chance for the building arts in England while architects and their organs take their present line. All they care for is their own selfish ends. They cut their own throats, for while they are so mean and sordid they cannot produce beautiful things, and it is no wonder that the public treat architecture with scorn. Men who can't treat old work with reverence, and are blind to its beauty, can't do good new work.' There is much truth underlying this statement. Architects, as a body,—and among them we must include the architect and surveyor,—are most strongly opposed to the Society. They consider that it should be discredited, and suppressed, if possible, as it is 'bad for trade.' No doubt they have benefited to some extent by the 'restoration' movement, but in the long run it will be most distinctly to their disadvantage. They have had the impossible task before them of converting a good old church into a good modern one. They have made them *modern* certainly, but not *good*. The result has been that they have brought discredit upon themselves, and made a large number of people permanently disgusted with architecture. . . . . Some idea may be formed of the need of this Society when it is stated that in the year 1885 the sum of 1,733,900*l.*, or nearly a million and three-quarters sterling, were voluntarily subscribed for church building, restoration, endowments, purchase of parsonages, and burial-grounds, irrespective of grants from the Ecclesiastical Commissioners, and other sources. Between the years 1876 and 1885, no less than 2,577 churches were restored, being an average of 250 a year, and 819 churches were rebuilt. The supervision exercised by the bishops of dioceses and the Ecclesiastical Commissioners with regard to the expenditure of this large sum of money is of the slightest and most perfunctory character."

LIFTS.

SIR,—With your permission we should like to say a few words in reply to Mr. Gibson's letter appearing in your issue of the 11th inst. [p. 885].

Referring first to your footnote, we had not the least intention to mislead your readers, and we think you would yourself admit that there is a broad line of distinction between one case where a specific danger is entirely absent, and another where such danger is present, but accompanied by a more or less efficient safeguarding device, which is an additional complication.

Turning to Mr. Gibson's remarks, we would first express our gratification that that gentleman finds himself in accord with us on the vexed question of pressures. With reference to the "second danger" pointed out by Mr. Slater, Mr. Gibson writes a general denial of its existence, and appeals to those who understand the subject. Will he be a little more explicit? In all the best English lifts, the charge of pressure water, after lifting the cage, is trapped in a closed chamber from which there is no escape, except through a passage completely dominated by the starting valve. The cage cannot move till the valve is opened. In case of overloading, the effect is only a greater compressing action on the entrapped water; but no movement can occur till something positively breaks. It is our constant practice to test our lifts by suspending in the cage double the maximum weight the lift will raise, and then lower the same slowly by the ordinary valve. The maximum weight should not be confounded with the contract weight. For instance, a 10 cwt. lift will probably raise a maximum load of 12 cwt.; and our test would be 24 cwt. In actual work, this would surely be overloading.

Now, we have given careful attention to all the published descriptions of the Otis lift, and have examined several machines after completion, with this particular point in view, and are thereupon prompted to ask Mr. Gibson the following questions:—

1. Is there in the Otis lift any positive entrapment of the charge of driving water as above described?
2. Is there not a free escape for such water back to the source of supply, restrained only by the pressure in that source?
3. In case of sufficient overloading of the cage, would not the driving water be forced back, and the cage descend?
4. Could the governor prevent all motion of the cage, or would it only act after a speed was attained greater than the ordinary working speed?
5. Has the attendant any power to stop the cage, should it commence to descend under the circumstances pointed out? If so, how?
6. Is there any provision against the cage being brought up with a shock at the foot of the well, under the assumed conditions?
7. Is not the speed permitted by the governor equal to 150 ft. per minute?
8. Is there any appliance in the Otis lift, other than the governor, which will prevent motion downwards when overloaded? If so, what is it, and where can it be seen at work?

We should not have presumed to so catechise Mr. Gibson, only that he has so often invited investigation and inquiry, and we feel sure he would not wish to confine such inquiry to those who have everything to learn in connexion with the subject.

ARCHIBALD SMITH & STEVENS.

June 14th, 1887.

MAIDSTONE BOROUGH ASYLUM COMPETITION.

SIR,—I send you a circular received from the Clerk to the Magistrates of Maidstone, and think your readers will agree with me that it shows scant courtesy to competitors, who must have spent each about two months' hard work in preparing the unusually elaborate drawings required for this asylum,—as I did.

I shall be much obliged if some of your readers can inform me what the "terms of such resolution" were, viz., whether a design was selected at all, or whether we are *all* made fools of.

A COMPETITOR.

*** We quite share the feelings of our correspondent. The circular referred to merely announces to the competitors that their plans will be returned to them by rail, "in pursuance of the terms of a resolution" (not given), and without a word of information as to what has been done. Competitors are entitled, in common courtesy and common fairness, to know what has been the result of their labours.

"CRESTS."

SIR,—In the article upon "Crests" in your paper of June 11th [p. 865], the device of an eagle preying upon a cradled infant is described as being that of the ancient house of Stanley. It had been, however, the crest of the Lathams of Latham, co. Lancaster; assuming, of course, that a particular crest can be legitimately appropriated by any one family. This device was adopted by the Stanleys upon the marriage of the great Sir John Stanley, K.G., feoffee of the Isle of Man (he died 1414), with Isabel, daughter and heir to Sir Thomas Lathom, or Latham, Kt., of Latham and Knowsley, co. Lancaster. The Stanleys (Stoneley) descended from Adam de Aldithley, of Normandy, *temp.* the Conqueror, and the Lathams (Fitzhenry), took surnames from their places of residence. An ancient visitation of Lancashire, deposited in Heralds' College, sets forth that a child which had been found in an eagle's eyrie, upon the Latham property, was adopted by the family. The tale may account for the crest, or *vice versâ*.

W. E. M.

June 11, 1887.

RECENT PATENTS.

ABSTRACTS OF SPECIFICATIONS.

6,212, Compressed Blocks for Building. E. Edwards.

This patent relates to the apparatus for pressing the blocks, which are composed of slag, gravel, cement, lime, &c. It is claimed that the improved construction ensures a rapid and accurate delivery of the blocks as they pass from the rollers and the press.

7,438, Bricks. E. C. and E. Kerry.

According to this invention, dovetail grooves are formed on the faces and ends of the bricks, with the object of giving a better hold for the plaster; or if the inner sides of the bricks are turned to each other in the inside of wall and grouted with cement the bricks cannot be drawn out, and stronger and better work is claimed.

8,067, Bricks. P. J. Milligan.

The improvement which is the subject of this patent consists in the method of stacking the bricks while being baked or fired. They are so stacked as to form a natural kiln, and adjoining them is a tall chimney-shaft, which draws off the products of combustion. Fuel chambers, and all the other arrangements used in brick-burning, are also provided for, but the bricks are laid in an improved manner, differing entirely from the ordinary way.

8,339, Facing Bricks and the Manner of Setting the Same. R. Steinau.

The object of this invention is to enable the facing of the wall to be built with only one kind or form of facing brick, by which great saving of time and material is obtained. The bricks are formed hood shaped, with two shanks, being in thickness exactly half of the thickness of the back bricks (less half of the thickness of the layer of mortar). The shanks are placed at right-angles to each other, one shank serving as a facing for the wall, and the other as a means for fastening and building the facing bricks into the wall.

13,621, Metallic Lattice-work for Ventilators, &c. E. Hancock.

According to this invention, tin is first cut into strips, some of them wider than the others. The wide ones are then folded on both sides; then those that are not folded or doubled are placed the opposite way, one over and one under, those folded thus forming a woven fabric, or what, perhaps, may be better described as a basketwork pattern.

16,697, Feed Mechanism for Logs in Vertical Saw Frames. W. Buchanan.

By this invention an extra bar or rod is fitted to the feed regulator and to the feed wheel of the saw-frame. By this means, instead of the deals being fed by jerky motion on to the saws, the automatic feed is nearly continuous, and a much smoother and easier feed is obtained.

8,725, Manufacture of Pigments. J. M. Bennett.

The object of the invention is to obviate the grinding or crushing in pan mills the barytes or zinc oxides which are used for paints. A disintegrator is used instead, preferably enclosed, to prevent the escape of noxious dust and to permit currents of dried or heated air to be passed over the material under treatment.

NEW APPLICATIONS FOR PATENTS.

June 3.—8,024, J. Stevenson, Process for the Preservation of Woods.—8,031, R. Gould, Composition for Distempering.

June 4.—8,055, W. Thompson, Roofing.—8,084, F. Lees, Screws.—8,088, A. Zettler, Electric Alarm Devices.

June 6.—8,140, W. Bohm, Manufacture of Stair Treads, Flooring, &c.

PASTORELLI'S LEVEL

FIGURE 1

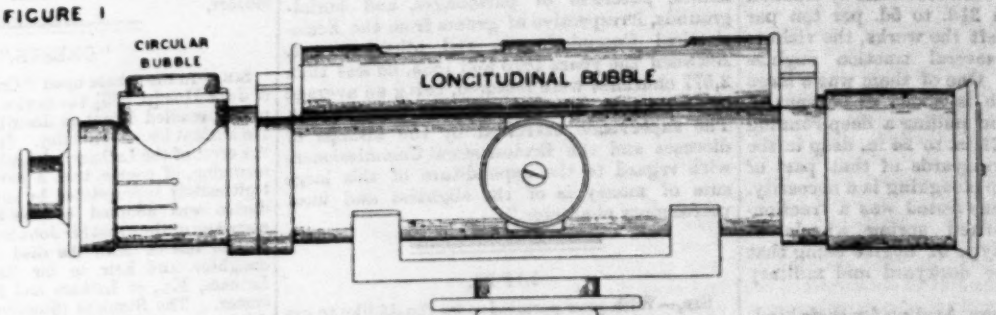
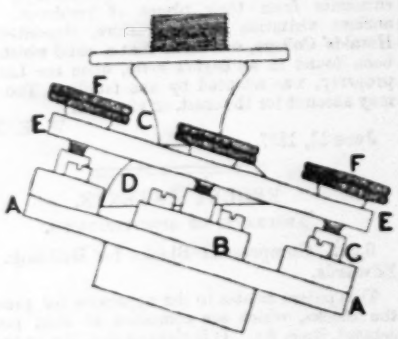


FIGURE 2



A — LOWER PARALLEL PLATE SCREWED ON STAFF HEAD. THE STAFF HEAD IS THE ADOPTION OF A PLAN BY THE LATE MR. W. FROUDE.

B — BALL-JOINT IN CENTRE OF PLATE A, WHICH ALLOWS THE INSTRUMENT TO MOVE NEARLY 20° OF INCLINATION, SO THAT THE TRIPOD MAY BE SET UPON THE GROUND ALMOST IRRESPECTIVE OF THE POSITION OF THE LEVEL.

C — VERTICAL AXIS WITH SOCKET END RESTING ON BALL B, AND CARRYING INVERTED CUP AND INSTRUMENT.

D — INVERTED CUP ATTACHED TO VERTICAL AXIS C, FOR RETAINING THE INSTRUMENT IN POSITION.

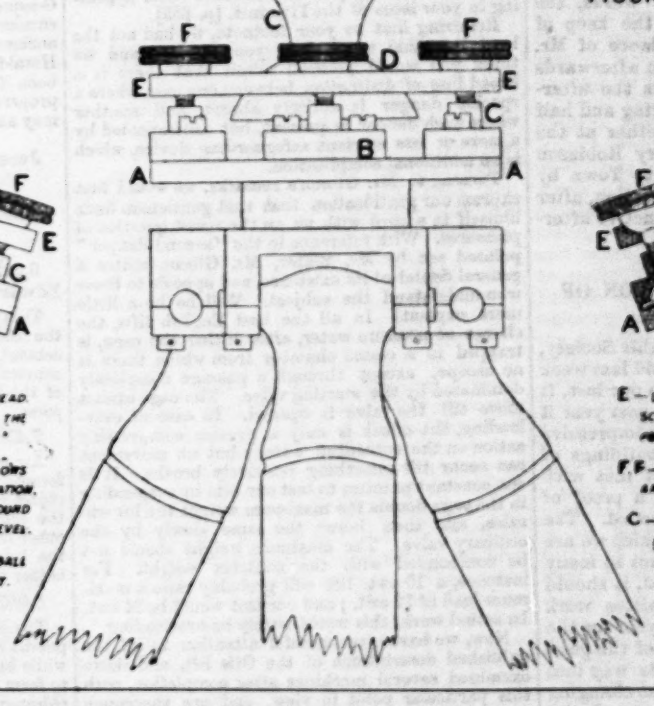
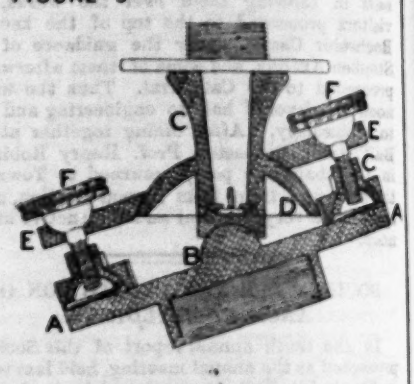


FIGURE 3



E — UPPER PARALLEL PLATE, CARRYING ADJUSTING SCREWS, THE HEADS OF WHICH WORK IN SOCKETS FORMED IN PLATE.

F, F — THE ADJUSTING SCREWS FOR CLAMPING CUP D AND FINALLY ADJUSTING THE LEVEL.

C — MOVEABLE NUTS WITH BALL AND SOCKET ENDS. NOTE: THE CUP D IS CONCENTRIC WITH THE BALL JOINT B, AND THIS AND THE BALL AND SOCKETS OF THE NUTS C ARE IN THE SAME GEOMETRICAL PLANE.

June 7.—8,170, J. Hughes and J. Holdsworth, Substitute for Stone or Marble.

June 8.—8,211, T. Wrigley, Preventing the Bursting of Water-pipes.—8,219, R. Garner, Self-flushing Water-closet.—8,221, J. Hamilton, Band Saw Machines.—8,252, W. Lee, Circular Saws.—8,266, W. Cliff and B. Peto, Brick or Building Block.—8,269, H. Price, Water Meters.

June 9.—8,316, C. Laspe, Fire Bricks.—8,318, A. Scrutton, Material or Compound for Paving.

PROVISIONAL SPECIFICATIONS ACCEPTED.

5,694, F. Griffith, Alarm Fastenings for Doors, &c.—6,410, G. Redfern, Lime Kilns.—6,435, J. Woodfield, Door and Window Fastenings.—6,695, J. Fairbairn, Window-sash Fasteners.—7,236, J. Warwick, Construction of Water-pipes exposed to the action of frost.—5,876, A. Barton and C. Arnold, Window or Sash Fasteners.—6,804, J. Johnson, Sawing or Cutting Stone.—7,036, F. Trier, Stone-working Machines.—7,178, J. Corbett and R. Hardy, Manufacture of Cement.—7,377, F. Crane, Varnishes.—7,400, G. Page, jun., Chandeliers and Gas Pendants.

COMPLETE SPECIFICATIONS ACCEPTED.

Open to Opposition for Two Months.

7,568, J. Hookham, Locks and Latches.—10,219, P. Smyth, Fittings for the Ventilation of and Access to Drains, Sewers, &c.—14,386, T. Rees, Metal Tiles.—16,694, J. Seymour, Window Fastenings.—6,283, A. Murray, Manufacture of Bricks, Mouldings, Ridges, &c.—6,496, C. Chambers, jun., Brickmaking Machines.—10,150, J. De Baere, Preventing Down-draught in Chimneys.—5,752, S. Taylor, Saws.—6,672, A. Boult, Window-sash Balances.—6,806, A. and W. McCreary, Monuments.

Sandwich (Kent).—The last portion of the restoration of St. Bartholomew's Church is now being carried out. The nave was restored about six years ago. The north wall of the north chapel has been entirely taken down and rebuilt, and a new oak roof is being put on, while oak benches are to be placed in the nave. The ancient screen is to be restored and placed beneath the chancel arch, and a new screen to the north arch of the chancel. All the other chancel fittings are of English oak. Mr. John Oldrid Scott is the architect, and Mr. Wise, of Deal, is the contractor.

The Student's Column.

FIELD WORK AND INSTRUMENTS.—XXV.

Levelling Instruments.

XI.—PASTORELLI'S LEVEL.

IN Pastorelli's instrument, the horizontal bar to which the telescope is attached is either made shorter than in other patterns, or is dispensed with altogether. In the latter case, the telescope is soldered to a saddle-piece, the base of which is made parallel to the axis of the telescope, and the saddle-piece is also rigidly fitted to the gun-metal stem or pivot, which connects it with the joint at the parallel plates. In the former case, as shown in fig. 1, the telescope can be detached at the screw connexion indicated in figs. 2 and 3. By a comparison of the elevation shown in fig. 2 and of the section shown in fig. 3 with the general elevation given in fig. 1, it will be seen that the vertical axis of the instrument, marked C, terminates in a socket which rests upon a gun-metal ball formed over the centre of the lower parallel plate. This is marked B in the illustration, and the construction permits the instrument to traverse vertically about 20 degrees of inclination from the perpendicular. The underneath of the vertical axis is formed in an inverted cup shape, the curve radiating from the centre of the ball-joint. The lower parallel plate, marked A, is screwed on to a special form of tripod head, originally suggested by the late Mr. W. Froude. The three pairs of cheeks, to which the legs are here attached, are set wider apart than in the ordinary systems, and arrangements are provided for tightening the trunnions in their connexion at the cheeks, by bisecting the cylindrical bearings in which the leg-joints work, and fastening them together by means of the capstan-headed screws indicated in fig. 1. This improvement conduces to increased steadiness and freedom from vibration as wear goes on, so far as the tripod head is concerned. The wooden legs are each circular in section, and when closed up for conveying from one station to another are very uncomfortable to carry.

The level is retained in position by the upper parallel plate marked E, which encircles the inverted cup marked D, and is clamped by the milled-headed adjustment screws marked F F. The cup-piece, D, is concentric with the ball-joint, B. The parallel plate adjustment screws each have spherical projections formed under their heads, which projections work in corresponding sockets formed in the top side of the upper parallel plate. These screws work in movable hemispherical nuts marked G, which themselves are held in seats, as shown attached to the lower parallel plate. By tightening or slackening these screws, the upper parallel plate is made to clamp or to release the inverted cup attached to the vertical axis of the instrument. By loosening any two adjacent screws, F F, the telescope can be tilted over by hand in the required direction, until the longitudinal bubble is approximately in the centre of its run, final adjustment being effected, after tightening the adjacent screws previously slackened, by turning the opposite parallel plate screws in the usual way. The tripod may be set upon the ground almost irrespective of level, and the telescope thus accurately set level without straining the parallel plates. Unlike the above arrangements, the ordinary parallel plates are very limited in their action, compelling the tripod-head to be placed within a small deviation from a horizontal plane, whereas the combination of the movable ball-joint with the parallel plate clamp, enables this form of tripod to prove of great value for work over very uneven country. It will be observed, however, that in this instrument the telescope stands higher than in ordinary instruments, and that, consequently, the vertical axis is longer. Before carrying the instrument from one station to another, care must be taken to tighten the plate-screws sufficiently to prevent the telescope from falling over in its vertical axis bearing. It will be further noticed that around the telescope are soldered two cylindrical gun-metal collars, very accurately turned and fitted to a perfect circumference. The longitudinal bubble, being fastened to these collars, can be fitted and framed parallel to the mechanical and optical axis of the telescope, with which the line of collimation should be

coincident. The centres of the movable nuts of the plate-screws are placed by the makers in the same geometrical plane as the centre of the ball-joint at the foot of the vertical axis, thus insuring the most perfect action in the motion of the upper parallel plate.

RECENT SALES OF PROPERTY.

ESTATE EXCHANGE REPORT.

JUNE 6.

By A. BOOTH.

Kentish Town—161, Prince of Wales-road, 63 years, ground-rent 7*l.*	£430

By E. RICHARDS & Co.

Balham—77, 79, and 81, Fernlea-road, 86 years, ground-rent 18*l.* 18*s.*	1,095

By H. SMALLMAN.

Bow—34, Parnell-road, freehold	350

By E. STIMSON.

Southwark—70, St. George's-road, 60 years, ground-rent 25*l.*	500

By JOHN LEES.

Brighton, Church-street—Freehold ground-rent of 20*l.* a year	760

JUNE 7.

By FAREBROTHER, ELLIS, & Co.

Portland-place—5, Park-crescent, and stabling, 33 years, ground-rent 64*l.* 5*s.* 6*d.*	4,800
City of London, Shoe-lane — The Old Red Lion Public-house, freehold	2,040
Tottenham, White Hart Lane—The Grange, and 1*a.* 0*r.* 8*p.*, freehold	1,600

By REYNOLDS & EASON.

Deptford—61 to 68, Shere-road, 59 years, ground-rent 7*l.* 12*s.*	1,500
Upper Norwood, Belvedere-road—Kazan House, 70 years, ground-rent 13*l.* 10*s.*	650

By VENTOM, BULL, & COOPER.

Acton—12 and 13, Apsley-terrace, 81 years, ground-rent 16*l.*	640

By H. N. NEWTON & Co.

Holloway—58, Drayton Park, 99 years, ground-rent 10*l.*	910

By DEBENHAM, TEWSON, & Co.

Highgate—Burfield House, freehold	3,000
South Kensington — 6, Trebovir-road, 86 years, ground-rent 14*l.*	1,275
22, Trebovir-road, 86 years, ground-rent 14*l.* 7*s.*	1,150
Hyde Park—57, Oxford-terrace, 45 years, ground-rent 15*l.*	1,400

By HORNE, EVERSFIELD, & Co.

Gordon Square—No. 30, 54 years, ground-rent 40*l.*	1,280

JUNE 8.

By TOPLIS & ROBERTS.

Clare Market—62 and 63, Stanhope-street, freehold	1,890
1, Houghton-street, freehold	940
6 and 6*a*, Denzil-street, freehold	1,300
17, Blackmore-street, and 10, Clare court, freehold	1,470

By T. TURNER.

Marylebone—95, High-street, 13 years, ground-rent 3*l.*	380
27, Hereford-street, 33 years, ground-rent 10*l.* 10*s.*	270
Willesden—3 and 8, Chapel-row, freehold	260

By M. HUBBARD.

Pimlico—41, Hanover-street, 37 years, ground-rent 8*l.* 8*s.*	505

By GEORGE GOULDSMITH, SON, & Co.

Chelsea — 33, Halsey-street, 54 years, ground-rent 6*l.*	710
32, Halsey-street, freehold	850
41, King's-road, 53 years, ground-rent 12*l.*	1,040
South Kensington—5, Pelham-street, 26 years, ground-rent 1*l.*	480

By MARLER & BENNETT.

Chelsea—31 and 33, Lamont-road, 80 years, ground-rent 14*l.*	890

By ROGERS, CHAPMAN, & Co.

Fulham-road—20 and 30, Sydney-street, 38 years, ground-rent 12*l.*	1,170
New Bond-street — No. 101, The Green Man Public-house, Corporation lease	5,030
Pall Mall — The Beaconsfield Club, 65 years, ground-rent 55*l.*	30,700
Pimlico—12, 13, and 14, Hindon-street, 36 years, ground-rent 16*l.* 15*s.*	1,400
Shepherd's Bush, Arminger-road—Ground-rents of 222*l.* 4*s.*, reversion in 94 years	5,340
Ethelden-road—Ground-rents of 6*l.* 6*s.*, reversion in 94 years	135
Ingersoll-road—Ground-rents of 115*l.*, reversion in 94 years	2,490
Uxbridge-road—Ground-rents of 18*l.* 15*s.*, reversion in 94 years	400

JUNE 9.

By EASTMAN BROS.

Sydenham—14 to 26 even, Prospect-road, 79 years, ground-rent 12*l.* 10*s.*	650
Lower Sydenham—1 and 2, Seagrave-villas, 82 years, ground-rent 11*l.*	55
1, 2, and 3, Stanton-terrace, 84 years, ground-rent 3*l.* 10*s.*	60
1 and 2, Sydenham-road, 82 years, ground-rent 24*l.*	165

By W. W. JENKINSON.

Lee—39, Southbrook-road, 76 years, ground-rent 10*l.* 10*s.*	450
Thornton Heath—A plot of freehold land	100
West Smithfield—Fee farm rents of 2*l.* 0*s.* 5*d.* per annum	40

By E. STIMSON.

Peckham—23 to 28, Ellesmere-terrace, 70 years, ground-rent 28*l.* 6*s.*	1,300
3 to 9, odd, Caulfield-road, 89 years, ground-rent 16*l.*	800
2, Boadicea-villas, freehold	265
114, Lugard-road, 88 years, ground-rent 7*l.* 10*s.*	285
Brixton—39, Loughborough Park, 38 years, ground-rent 5*l.* 5*s.*	210
Rotherhithe—6, King-street, freehold	230
Clapham Junction—36 and 38, Este-road, 87 years, ground-rent 8*l.*	315
Battersea—106 to 111, Latchmere-grove, 87 years, ground-rent 24*l.*	430
117, 118, and 119, Latchmere-grove, 87 years, ground-rent 12*l.*	£220
Clapham—69, Wirtemberg-street, 20 years, ground-rent 3*l.* 19*s.*	210

By C. C. & T. MOORE.

Limehouse, Carr-street—Stonebridge Wharf and House, 25 years, ground-rent 8*l.*	375
Old Ford-road—Ground-rents of 14*l.*, reversion in 76 years	305
Forest Gate—Ground-rents of 14*l.*, reversion in 89 years	310
Stepney Causeway—No. 5, copyhold	260
Ratcliff—93, Brook-street, copyhold	260
Finchley, Fortis Green—Freehold residence and 1*a.* 1*r.* 35*p.*	1,705
Bow—An improved ground-rent of 18*l.* 8*s.*, term 45 years	275
Ratcliff—5 and 7, Bromley-street, term 18 years	£22. 10*s.*

By NEWBON & HARDING.

Islington—489, Liverpool-road, freehold	500
Upper Holloway—12, Windermere-road, freehold	375
Barnsbury—156 and 158, Hemingford-road, and the Hemingford Arms, 55 years, ground-rent 60*l.*	1,260
10 and 12, Offord-road, 62 years, ground-rent 12*l.*	845
Islington—95, Englefield-road, 54 years, ground-rent 6*l.* 5*s.*	505
Westminster—An improved rental of 123*l.* 14*s.*, term 18 years	1,430
Notting Hill — 131, Clarendon-road, 63 years, ground-rent 8*l.*	220

JUNE 10.

By GODWIN & BAILEY.

Maida Hill—22, Maida Hill West, 29 years, ground-rent 10*l.*	450

By S. HIGGINS.

St. John's Wood—14, St. John's Wood Park, 56 years, ground-rent 25*l.*	2,000

By W. & F. HOUGHTON.

Fitzroy-square — 121, Charlotte-street, 49 years, ground-rent 47*l.*	910
Dorset-square — 57, Balcombe-street, 33 years, ground-rent 10*l.*	600

MEETINGS.

SATURDAY, JUNE 18.

Architectural Association.—Visit to Cambridge. (See programme on p. 900.)

THURSDAY, JUNE 23.

Society for the Encouragement of the Fine Arts.—A Morning Meeting.

SATURDAY, JUNE 25.

Glasgow Architectural Association.—Visit to Dunfermline.

Miscellanea.

Sale of a Building Estate at Cromer.—On Monday last a large sale of building land, in numerous plots, took place at Cromer. Access to this pleasant seaside resort has hitherto been rather difficult, but a new order of things is about to obtain. Simultaneously the railway authorities and some of the largest landowners in the neighbourhood have determined to give effect to the powers of development which Cromer and its surroundings possess. The Great Eastern Company are at present busily engaged in providing increased means of communication over their system, whilst the Eastern and Midland Company are constructing a second line to Cromer, which will have a station within a short distance of the old church. This last-named line will place Cromer in direct communication with Nottingham, Derby, Leicester, and other large towns in the Midland counties. Arrangements are being made for the sale of plots of freehold building land, some of them in the centre of the town, others in a sheltered valley between the sea beach and cliffs, and the woodland scenery inland, and others, again, on the cliffs themselves facing the sea. It was a part of the land in the valley just named which was offered for sale on Monday. It comprised the first portion of the Suffield Park Estate, situated a few minutes' walk from the sea cliffs and Lighthouse Hill. The property offered consisted of 172 lots. Messrs. Baker & Sons conducted the sale in a large tent which had been erected on the estate. On the sale commencing every lot was rapidly bought. The several lots submitted have frontages of from 18 ft. to 20 ft., and depths of from 60 ft. to 150 ft., and the prices realised ranged from 25*l.* to 50*l.* The sale included two hotel plots, one of which was sold for 241*l.*, and the other for 124*l.* The total proceeds of the sale amounted to about 6,500*l.* Several of the purchasers took as many as eight and ten lots each, and it was stated that building would be immediately commenced on many of the plots. The stipulations provided that no house to be erected is to be of less value than 200*l.*, whilst on many of the plots the stipulated outlay is not to be less than 300*l.* and 400*l.*

A Forthcoming Sale of Land, particulars of which are given in an advertisement on our back page, will include the whole of the assets of the London Land Company.

Registration and Technical Education of Plumbers in Scotland.—A meeting of masters and journeymen plumbers, architects, and builders, for the purpose of forming a local branch in connexion with the system of registration and technical education of plumbers established by the Company of Plumbers, London, and the City and Guilds Institute, was held on the 8th inst., in the Town-hall, Dundee. There was a large attendance, those present representing Forfarshire, Perthshire, and Fifeshire. Provost Ballingall presided. Mr. W. R. E. Coles, London, made a statement explanatory of the objects and working of the system of registration and technical education of plumbers. Dr. Anderson, medical officer for Dundee, afterwards adverted to the heavy mortality from typhoid fever and diphtheria in Dundee, resulting through scamped plumber work in many new houses erected after the passing of the Improvement Act. He stated the voluntary registration was good so far as it went, but argued that registration should be compulsory. Mr. Stewart Robertson moved that the meeting approve of the system of registration and technical training of plumbers, and in view of the important position which the plumbers' craft occupies in relation to the public health, agree to the formation of a local branch, upon condition that the executive and examiners be practically acquainted with the Scotch method of plumbing and its technicalities. Mr. Frew, Perth, seconded, and the motion was cordially adopted. Professor Ewing, of University College, Dundee, who also expressed approval of the proposal that the registration of plumbers should be compulsory, said that in a day or two ground would be broken in Dundee for the erection of a new technical school, and said that would be a consideration for the committee whether they should not institute classes, applicable to plumbers and plumbing-work. A committee, with Provost Ballingall as president, was then formed.

Abusing a Sanitary Inspector.—In a case which was heard last week by the magistrates sitting at Coventry, where the defendant, a pig-keeper, was convicted and fined for using obscene language to the Sanitary Inspector there,—insulting him whilst engaged in the performance of his duties under the Public Health Act, 1875,—Mr. T. Browett, the Town Clerk, who appeared for the complainant, remarked that the people who kept pigs, many of them honestly believed that their pig-styes, however filthy, were not a nuisance, and they resented, and occasionally they resented violently, any interference with pig-keeping. It was known to the Sanitary Committee, and, he thought, to almost all intelligent people, that that was a dangerous delusion. Fevers constantly infested the city,—they were never without fevers,—and they were almost as constantly traced to polluted air or polluted water. That people were struck down by these invisible foes was as plain as if they were struck down by a weapon, and yet the pig-dealers could not be brought to believe in this truth. The duties of an Inspector of Nuisances, therefore, were necessary, and his services of great importance to the public. They were also at times extremely nauseous and repulsive, and ought not to be made intolerable to the Inspector by conduct such as that of the defendant towards the complainant.

Improvements in Enamelled Bricks.—According to the *Bulletin de la Céramique*, M. Laloy has patented a process for baking enamelled bricks, remarkable for its simplicity. Furnace baking being relatively expensive, he bakes in moulds in the open air, as is usual in Flanders for ordinary bricks. He mixes with the clay a certain proportion of dust from coke, coal, or any other combustible substance, which is diffused throughout the mass by the kneading machine. The moulded and dried products receive the enamel colours according to the usual methods, and are laid in a pile according as the fire rises. The baking is said to be complete, and the vitrification of the coating perfectly homogeneous.

The Cement Trade in Germany.—The German cement industry (notably that of Silesia), has benefited by the re-opening of the Roumanian market, through the treaty of commerce between the two nations. The *Schlesische Zeitung* remarks that the English article which, on account of low sea freight, has been in a favoured position for some years, has now energetic opposition from the German product.

Church Restoration in London.—The Church of the Holy Trinity, Little Queen-street, Holborn, which was built about fifty years ago, has been recently re-opened, after some additions and improvements effected from the designs and superintendence of Mr. C. Forster Hayward, F.S.A., Museum-street, Bloomsbury. These include the unusual but most successful change in position of the altar from east to west, a matter which was most carefully considered, and not carried out till the sanction of all the authorities was obtained, and a faculty duly issued after inquiry, but a change of arrangement which might well be followed by many other churches where the frontage is towards the east with entrance lobbies right and left of the Communion-table, as was the case in this Little Queen-street church. The western gallery and useless enclosure beneath, and a strip of each gallery, north and south, being removed, a wide space was obtained for a raised chancel enclosure, with pierced stone parapets; the organ, formerly in this western gallery, being placed on the north, and vestry screens on the south side, the old pulpit and desks being cut down in height and refixed. The new chancel stalls in oak were carved by Robinson. The tiles for the sacrarium were supplied by Messrs. Carter & Co., and those elsewhere by Messrs. Simpson (for Maw & Co.). The stained glass (the gift of Mr. Bateman) for the new window over the altar is by Messrs. Moore & Co.——On the 25th of May was laid the foundation-stone of St. James's Church, in a fast-growing suburb which is locally designated West Hampstead. Mr. A. W. Blomfield is the architect, and the contractor is Mr. J. Woodward, of Finsbury. The design is in the Early English style; the materials are red brick with Portland and Bath stone dressings; the capacity, 1,000 worshippers. A grant of 1,000*l.* has been made from out of the Bishop of London's Fund, and Mr. James La Fontaine subscribes 2,000*l.* towards the whole cost, which is estimated at 8,300*l.* These subscriptions bring the present contributions up to a total of nearly 6,000*l.*——Designs for the decoration and restoration of the chancel of St. Philip's Church, Camberwell, have been prepared by Mr. H. P. Burke Downing, architect, and the work is being carried out under his supervision as the Jubilee memorial of the parish. The decorations in oil will be executed by Mr. R. Davison, of Mary-lebone-road.

Leeds and Yorkshire Architectural Society.—A general meeting of the members of the Associates' Sketching and Art Club was held on Monday evening, the 13th inst., at the Society's Rooms, Croft's-chambers, Infirmary-street. After the usual business, there was an interesting discussion on the sketches produced during the past month, amongst the most creditable of which are Mr. F. W. Bedford's "Interior, Gainsborough Manor House," Mr. J. W. Twist's "Old Font and Cover, Selby Abbey Church"; Mr. A. E. Dixon's "Lumb Hall, near Drighlington"; and Mr. W. Carley Hall's "Chapter House, Kirkstall Abbey." The drawings will remain on view to the public until Friday, the 17th inst.

Architecture at University College, London.—The prizes annually offered by Professor Roger Smith for the best set of sketches illustrative of the subjects of the lectures on architecture during the session have just been awarded. In the art class the first prize falls to Mr. John Borrowman, jun., the second to Mr. Harold Lander, and the third to Mr. Herbert Winny. In the science class the first prize is gained by Mr. Ernest A. Rüntz, and the second by Mr. R. S. Maynard. By the courtesy of the Directors of the Crystal Palace, the students of these classes, to the number of nearly thirty, paid a visit, on Friday, the 10th inst., to the Fine Art Courts at the Palace; some of the most remarkable of their contents were pointed out by the Professor.

Gillingham.—A large population having sprung up within the last few years at Gillingham, on account of its proximity to the Chatham Dockyards, it is found necessary to provide increased church accommodation. A strong committee has therefore been formed to build a new church to be called St. Barnabas, and Messrs. J. E. K. & J. P. Cutts have been instructed to prepare plans. The church is to seat 600, and to cost about 8,000*l.* Gillingham is the head quarters of that curious sect the Jezreelites, who are building a large temple there.

British Archæological Association.—The closing meeting of the session was held on the 1st of June, Mr. Thos. Morgan, F.S.A., in the chair. It was announced that the Association had been invited to hold the Congress for 1888 at Glasgow, and that the invitation had been provisionally accepted. The Rev. Prebendary Scarth exhibited a hoard of bronze implements recently found at Penseymoor, near Neath. The articles were much worn, and appeared to be the stock-in-trade of a founder. Mr. Loftus Brock, F.S.A., exhibited a perfect example of rare Sieberg ware obtained from Germany of similar pattern to what is sometimes found in excavations in London. Drawings were sent by Mr. J. T. Irvine of a small cup of green glass not unlike Roman work, but more probably of Early Saxon date. It was recently found in a coffin with an interment at Peterborough Cathedral. Mr. Walter Myers, F.S.A., described some curious bronze buckles of Etruscan date and other personal ornaments found near Ancona. A paper was then read by Mr. J. Romilly Allen, F.S.A. (Scot.), on the "Antiquity of Fonts." The existence of church fonts of earlier date than the Norman Conquest was proved by reference to many existing examples, some having inscriptions, as at Potterne, Wilts, or covered with interlaced ornament as at Penmon, Deerhurst, and other places. At Bingley, Yorkshire, is a curious font with a Runic inscription, and at Little Billing, Northants, and at Patrishow inscriptions in Saxon uncial characters occur. The second paper was on the "Excavations of the Site of Poughley Priory, Berks," by Mr. H. J. Reid, F.S.A., which have recently been carried out by the lecturer. The ground plan of the church has been recovered in part. It is not truly Orientated, but three interments found in the chancel are so placed. Two thigh-bones were found arranged in the form of a St. Andrew's cross over one of the interments.

PRICES CURRENT OF MATERIALS.

TIMBER.	£. s. d.	£. s. d.
Greenheart, B.G. ....ton	5 10 0	7 10 0
Teak, E.I. ....load	8 0 0	12 0 0
Sequoia, U.S. ....foot cube	0 2 3	0 3 0
Ash, Canada ....load	3 0 0	4 10 0
Birch ,, ...	2 0 0	3 10 0
Elm ,, ...	3 10 0	4 10 0
Fir, Dantsic, &c.	1 10 0	4 0 0
Oak ,, ...	2 10 0	4 10 0
Canada	3 0 0	6 0 0
Pine, Canada red	2 0 0	3 10 0
,, yellow	2 10 0	4 10 0
Lath, Dantsic ....fathom	3 0 0	5 0 0
St. Petersburg	4 0 0	5 10 0
Wainscot, Riga ....log	0 0 0	0 0 0
,, Odessa, crown....	2 15 0	3 0 0
Deals, Finland, 2nd and 1st...std. 100	7 0 0	8 0 0
,, 4th and 3rd	5 10 0	6 10 0
Riga	5 10 0	7 0 0
St. Petersburg, 1st yellow	8 0 0	13 0 0
,, 2nd ,, ...	7 0 0	8 0 0
,, white	6 10 0	8 10 0
Swedish	0 0 0	0 0 0
White Sea	7 0 0	16 0 0
Canada, Pine, 1st	16 0 0	24 0 0
,, ,, 2nd....	10 0 0	15 0 0
,, ,, 3rd, &c....	6 0 0	9 0 0
,, Spruce, 1st	8 0 0	9 0 0
,, ,, 3rd and 2nd	5 0 0	7 0 0
Deals—New Brunswick, &c.	5 0 0	6 10 0
Battens, all kinds	4 0 0	10 10 0
Flooring Boards, sq., 1 in., prepared, First	0 8 0	0 11 0
Second	0 6 6	0 7 6
Other qualities	0 5 0	0 6 0
Cedar, Cuba ....foot	0 0 2½	0 0 3½
Honduras, &c.	0 0 3	0 0 3½
Australian	0 0 2	0 0 3
Mahogany, Cuba	0 0 4	0 0 7
St. Domingo, cargo average	0 0 4	0 0 6
Mahogany, Mexican, cargo av....	0 0 3½	0 0 4
Tobasco ,, ...	0 0 4	0 0 5½
Honduras ,, ...	0 0 3½	0 0 5½
Maple, Bird's-eye	0 0 6	0 0 8
Rose, Rio ....ton	8 0 0	11 0 0
Bahia....	8 0 0	9 0 0
Box, Turkey ....ton	5 0 0	12 0 0
Satin, St. Domingo ....foot	0 0 5	0 0 9
Porto Rico	0 0 6	0 0 10
Walnut, Italian	0 0 3½	0 0 5½

METALS.		
IRON—Bar, Welsh, in London...ton	4 7 6	4 15 0
,, ,, in Wales	4 2 6	4 7 6
,, Staffordshire, London	5 10 0	6 0 0
Sheets, single, in London	6 15 0	8 10 0
Hoops ,, ...	6 0 0	7 0 0
Nail-rods ,, ...	5 15 0	6 10 0
COPPER—		
British, cake and ingot ....ton	42 10 0	43 0 0
Best selected	44 0 0	44 10 0
Sheets, strong....	50 0 0	0 0 0
Chili, bars	39 0 0	39 10 0
YELLOW METAL ....lb.	0 0 0	0 0 0
LEAD—		
Pig, Spanish ....ton	12 7 6	0 0 0
English, common brands....	12 12 6	0 0 0
Sheet, English	13 13 6	13 17 6
SPELTER—		
Silesian, special ....ton	14 13 6	14 15 0
Ordinary brands....	14 10 0	14 12 6

METALS (*continued*).	£. s. d.	£. s. d.
TIN—		
Straits....ton	102 15 0	103 0 0
Australian	103 0 0	0 0 0
English ingots	106 0 0	0 0 0
ZINC—		
English sheet ....ton	0 0 0	0 0 0
OILS.		
Linseed ....ton	20 10 0	22 15 0
Cocoanut, Cochin	30 0 0	33 0 0
Ceylon	24 0 0	24 5 0
Palm, Lagos	21 10 0	0 0 0
Rapeseed, English pale	24 0 0	24 5 0
,, brown	22 10 0	22 15 0
Cottonseed, refined	21 5 0	22 0 0
Tallow and Oleine	25 0 0	45 0 0
Lubricating, U.S.	5 0 0	8 0 0
,, refined	5 0 0	12 0 0
TURPENTINE—		
American, in casks ....cwt.	1 9 6	1 9 9
TAR—		
Stockholm ....barrel	0 14 0	0 14 6
Archangel	0 11 6	0 12 0

TENDERS

BEDFORD.—For the erection of shops in Silver-street, for the Trustees of St. John's Hospital. Messrs. Usher & Anthony, architects and surveyors, Bedford:—

J. Potter	£1,990 0 0
Melcombe Bros.	1,947 0 0
S. Foster	1,855 0 0
T. Spencer	1,853 0 0
G. Harrison	1,849 0 0
J. Smith	1,847 0 0
J. P. White	1,843 0 0
Coleman & Fathers	1,829 10 0
Warton & Walker	1,810 0 0

BEESTON (Notts).—For erection of a double villa, St. John's Grove, Beeston, Notts. Mr. J. Bindon Carter, architect, Exkell Chambers, Market-place, Nottingham:—

Oscroft & Labram	£890 0 0
H. Bott	845 0 0
G. Pillatt	785 0 0
J. G. Thomas	741 15 0
John Cooper	732 0 0
Hatfield & Frost	723 0 0
S. & J. Cargill	698 0 0
S. Ingham & Sons	694 0 0
Gilbert & Gabbitas	677 0 0
Charles Starr, Beeston*	663 0 0
J. F. Price	630 0 0
T. H. Attewell (accepted)	610 0 0

[* The rest of Nottingham.]

BORROWASH (near Derby).—For additions and alterations to Borrowash Mills, belonging to the Earl of Harrington, Mr. W. H. Radford, architect, Nottingham:—

F. J. Middleton, Nottingham	£3,400 0 0
R. Weston, Derby	2,701 0 0
J. Hutchinson, Nottingham	2,500 0 0
G. Bell & Sons, Nottingham	2,490 0 0
Charles Wooll, Nottingham	2,445 0 0
F. Shaw & Son, Ilkeston	2,440 0 0
J. Bromhead, Nottingham	2,440 0 0
F. Wartnaby, Nottingham	2,395 0 0
W. Walkerdine, Derby	2,350 0 0
W. Eaton, Derby	2,315 0 0
W. Vickers, Nottingham	2,298 0 0
H. Bott, Nottingham	2,295 0 0
Arthur Brown, Derby	2,290 0 0
Robert Hockley, Grantham	2,285 0 0
Wheatley & Maule, Nottingham	2,280 0 0
F. Slater, Derby (accepted)	2,118 3 9

BRISTOL.—For forming and constructing new road and sewers at Bedminster, for Mr. J. B. Hasell. Mr. Herbert J. Jones, surveyor, Bristol:—

E. Walters	£330 0 0
W. Church	317 15 0
R. Wilkins & Sons	298 0 0
Eastabrook & Sons	274 0 0
Beachim & Balmont	273 19 6
T. R. Lewis	271 0 0
Durnford & Son	265 0 0
G. Humphreys	259 0 0
H. J. Rossiter	253 10 0
S. Turner	250 0 0
J. Perrott (accepted)	230 0 0
W. Mereweather (withdrawn)	210 0 0

[All of Bristol.]

BRISTOL.—For additions to the schoolroom of the Wesleyan Chapel, Redland-road. Mr. Herbert J. Jones, architect, Bristol:—

	First portion.	Second portion.
R. Wilkins & Sons	£344 0 0	
G. Humphreys	238 0 0	
J. Perrott	222 0 0	
Eastabrook & Sons	219 0 0	
T. R. Lewis	187 0 0	£327 0 0*

[All of Bristol.]

* Conditionally accepted.

BRISTOL.—For new roof, &c., to warehouse, Nelson-street, for Messrs. F. W. Gedge & Sons. Mr. Herbert J. Jones, architect, Bristol:—

T. Young	£184 8 8
Eastabrook & Sons	177 0 0
G. Humphreys	171 0 0
H. Johnson	170 0 0
R. Wilkins & Sons	164 0 0
J. Perrott	156 12 0
T. R. Lewis	156 0 0
W. Church (accepted)	150 15 7

[All of Bristol.]

BUCKHURST HILL.—For alterations to Nos. 4 to 9 (inclusive), Queen's-road; 1 to 9 (inclusive), Albert-road; 1 to 8 (inclusive), Albert-road, North; 2 to 7 (inclusive), Charford-terrace, Buckhurst Hill. Mr. Banister Fletcher, architect:—

Schooling & Wood	£3,625 0 0
S. Blore	1,530 0 0
Steel Bros.	1,425 0 0
A. W. Green	1,004 18 0
J. Fanthorpe	847 0 0
John Powell	739 0 0

COMPETITIONS, CONTRACTS, & PUBLIC APPOINTMENTS.

Epitome of Advertisements in this Number.

COMPETITIONS.

Nature of Work.	By whom required.	Premium.	Designs to be delivered.	Page.
Technical School, Stockport	The Committee	25*l.*	July 25th	ii.

CONTRACTS.

Nature of Work, or Materials.	By whom required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.	Page.
Road Materials, &c.	Fulham Vestry	J. P. Norrington	June 20th	xii.
Tar Pavement	Chelmsford Local Brd.	C. Pertwee	do.	ii.
Alterations, &c., to Premises	Chelsea, &c., Co-op. Society	J. F. Goody	June 22nd	xii.
Erection of Lock-up, &c., Hoddesdon	County of Hertford	Urban A. Smith	June 23rd	ii.
Road Making	Walthamstow Local Bd.	H. S. Ridings	do.	ii.
New Station at Gloucester	Great Western Ry. Co.	*Official*	do.	ii.
Sewage Works	Gt. Yarmouth Cor.	J. W. Cockrill	June 24th	ii.
Additional Buildings, &c., Ambulance Station	Met. Asylums Board	A. & C. Harston	do.	ii.
Gas Works	Mountain Ash Local Bd.	G. W. Stevenson & Son	June 27th	ii.
Covered Service Reservoir	Leicester Corporation	T. & C. Hawksley	do.	ii.
Painting and other Works, Darenth Asylum	Met. Asylums Board	A. & C. Harston	do.	ii.
Movable Street Fire Stations	Hornsey Local Board	T. De Courcy Meade	do.	ii.
Sewering, Levelling, &c., to Road	Hanwell Local Board	*Official*	June 28th	xii.
Repairs and Alterations	Lewisham Bd. of Works	do.	do.	xii.
Jobbing Work	Tottenham Local Board	do.	do.	xii.
Re-Erection of Footbridge	Chelsea Vestry	do.	do.	xii.
Iron Fencing	Rochester Corporation	do.	do.	ii.
Infants' School	Walthamstow School Board	W. A. Longmore	do.	xii.
Macadam	Torteth Park Local Bd.	John Price	June 29th	ii.
Stone for Macadamising	Hull Corporation	A. E. White	June 30th	ii.
Jubilee Clock Tower, Gravesend	The Committee	J. Johnson	do.	xii.
Storekeeper's Dwelling, &c., Harwich	Trinity House Cor.	*Official*	do.	xii.
Entrance Gates to Park	Hull Corporation	A. E. White	July 1st	xii.
Wooden Drill Shed, Island of Lewis	Admiralty	*Official*	do.	ii.
Caretaker's Cottage	Hornsey Local Board	T. de Courcy Meade	July 4th	xii.
Erection of Buildings	Eastern Counties' Asylm for Idiots	R. F. Vallance	July 6th	xii.
Sewerage Works	Kingston R. S. A.	B. Latham	do.	ii.
Rebuilding Cemetery Boundary-Wall	Paddington Burial Brd.	*Official*	July 7th	xii.
New Head Post-Office, Eastern District	Com. of H.M. Works	do.	July 8th	xii.
Rebuilding Hospital, Welbeck-street, W.	The Committee	E. C. Lee	July 11th	xii.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in.	Page.
Clerk of the Works	Kingston-on-Thmes Cor.	Not stated	June 24th	xvi.
Surveyor, &c., of Gas and Waterworks	Mountain Ash Local Bd.	250*l.*, &c.	June 27th	xvi.
Inspector and Surveyor's Assistant	Chelsea Vestry	120*l.*, &c.	June 30th	xvi.
Clerk of the Works	Eastern Counties Asylm for Idiots	Not stated	July 6th	xvi.
Clerk of the Works	Cambridge Imp. Com.	2*l.* 5s. weekly	Not stated	xvi.
Borough Surveyor	Canterbury Cor.	250*l.*, &c.	do.	xvi.

CAERLEON (Mon.).—For proposed Boys' Upper School, Caerleon, Newport, Mon. Mr. E. A. Lansdowne, architect, Newport, Mon. Quantities by the architect:—

	A.	B.	C.
Morgan & Evans, Pontnewynydd	£194	£5,077	£5,271
D. E. Jones & Co., Gloucester	512	4,950	5,462
Church, Wapping, Bristol	528	4,799	5,327
H. A. Forse, Ashley Hill, Bristol	425	4,590	5,015
G. Drew, Chalford, Stroud	395	4,520	4,915
C. Claridge, Banbury, Oxon	434	4,478	4,912
Wm. Jones & Son, Newport, Mon.	318	4,547	4,865
John Linton, Newport, Mon.	475	4,299	4,774
Stephens & Bastow, Bristol	439	4,299	4,738
Inwood, Malvern	377	4,255	4,632
Wm. Blackburn, Newport, Mon.	455	4,045	4,500
John Burgoyne, Blaenavon	455	3,900	4,355
Wm. Price, Newport, Mon.	345	3,998	4,343
Exors. W. Gradwell, Barrow	370	3,895	4,265
H. Parfitt, Pontnewydd	286	3,975	4,261
C. Miles, Newport, Mon.	300	3,845	4,145

[Architect's estimate on C.... £4,197 13s. 6d.]

A. Tower (alone).
B. School with bellcote.
C. Tower with school instead of bellcote.

CROYDON.—For alterations to the Gun Tavern, Church-street, Croydon, for Mr. C. Beaumont. Mr. H. I. Newton, architect, Queen Anne's Gate, Westminster:—

Page	£390	0	0
Knight & Bennett	375	0	0
Waller (accepted)	374	0	0

ENFIELD.—For erection of villa residence at Church-road, Enfield. Mr. Gilbee Scott, architect:—

J. Linzell	£2,200	0	0
Scrivener & Co.	2,190	0	0
T. Boyce	2,185	0	0
Field & Son	2,181	0	0
W. Downs	2,180	0	0
W. Shurmur	2,169	0	0
Harris & Wardrop	2,150	0	0
Fairhead & Son	2,[illegible]90	0	0
T. & W. D. Patman	2,082	0	0

HALLSVILLE (Essex).—For the erection of a block of school buildings and appurtenances, to be known as the Beckton-road Schools, Hallsville, for the West Ham School Board. Mr. J. T. Newman, architect, No. 2, Fen-court, E.C. Quantities by Messrs. R. L. Curtis & Sons:—

Hearle & Son	£13,474	0	0
G. J. Hosking	13,394	0	0
J. Catley	13,284	0	0
B. E. Nightingale	13,180	0	0
J. Morter	12,990	0	0
A. Reed	12,898	0	0
W. Gregar*	12,467	0	0

* Accepted, subject to approval of Education Department.

HATFIELD.—For erection of One Bell Hotel and Drayhorse public-house at Hatfield, for Messrs. Prior, Ried, & Co. Mr. W. D. Church, architect:—

	One Bell.	Drayhorse.	Total.
Godden & Co.	£3,485	£823	£4,308
Dove Bros.	3,215	760	3,975
Redhouse	3,177	725	3,902
A. J. Taylor	3,197	684	3,881
W. Shurmur	3,159	694	3,853
Fairhead & Son	3,128	718	3,846
Miskin	3,130	695	3,825
Holloway	3,110	685	3,795

KENSINGTON.—For decorations at No. 1, Courtfield-gardens, South Kensington, for Mr. Robert Morley. Mr. W. Seckham Witherington, architect:—

J. Mears*	£650	0	0
J. Enderby	585	0	0
C. F. Kearley	575	0	0
Patman & Fotheringham	565	0	0
T. W. Heath, Earl's Court	518	15	0

* Error in cast: should have been £550.

KETTERING.—For the erection of six houses in Gordon-street, Kettering, for the Kettering "Manchester Order of Oddfellows." Mr. H. A. Cooper, architect. Quantities supplied by the architect:—

A. W. Bruin, Kettering	£1,054	0	0
Samuel Manby, Kettering	1,051	0	0
William Clow, Broughton	1,035	16	0
J. Goode, Kettering	1,010	0	0
Jno. Bellamy, Kettering	1,007	0	0
H. F. Henson, Kettering	999	0	0
Fred. Barlow, Rothwell	995	0	0
George Henson, Kettering	990	0	0
C. & F. Henson, Kettering	983	0	0
Charles Sharman, Kettering	975	0	0
Margetts & Neal, Kettering*	930	0	0

* Accepted.

KETTERING.—For the erection of two houses, The Broadway, Kettering, for Mr. H. V. Bird. Mr. H. A. Cooper, architect. Quantities supplied by the architect:—

Bricklayer, &c.

Jno. Coltman, Kettering (accepted)	£319	0	0

Carpenter and Joiner.

Samuel Manby, Kettering	£145	0	0
Jno. Wilson, Kettering	130	10	0
George Ginns, Kettering (accepted)	129	0	0

Plumber, &c.

A. G. Dorr, Kettering	£95	0	0
E. Cooper & Sons, Kettering	78	0	0
E. Nichols, Northampton (accepted)	69	0	0

LONDON.—For erection of King's Arms public-house and two shops, Charing Cross-road. Messrs. Wylson & Long, architects:—

S. J. Jerrard	£4,490	0	0
W. Shurmur	4,482	0	0
Patman & Fotheringham	4,337	0	0
Spencer & Co.	4,235	0	0
T. Oldrey	4,200	0	0
Gregory & Co.	4,175	0	0
Ward & Lamble	4,066	0	0
Rhodes	4,060	0	0
J. Chappell	3,872	0	0

LONDON.—For pulling down and re-building the premises No. 17, Catherine-street, Strand, for the executors of the late Sir Horace Jones, Knt. Messrs. William Reddall & Son, 10, South-street, Finsbury, architects:—

James Morter	£837	0	0
Colls & Sons	826	0	0
Pritchard & Son	812	0	0
Edward Conder	790	0	0
Killby & Gayford	782	0	0
Hall, Beddall, & Co.	734	0	0

LONDON.—For gas-fitting work at the "Lord Hill," Waterloo-road:—

J. Bigg	£114	0	0
Buckley & Beach	102	3	0
W. Winn	102	0	0

LONDON.—For alterations to No. 52, Strand, for Mr. J. Gianella. Mr. Banister Fletcher, architect:—
Messrs. Grimaldi & Dovey (accepted) ... £1,795 0 0

LONDON.—For alterations to Nos. 239, 241, 243, and 245, Manchester-road, Cubitt Town. Mr. Banister Fletcher, architect:—

Schooling & Wood	£335	10	0
J. Powell	180	0	0
Steel Bros. (accepted)	175	0	0

LONDON.—For alteration at the George and Dragon, Hackney-road, for Messrs. Francis & Son. Messrs. Alexander & Gibson, architects, Great James-street:—

Jackson & Todd	£319	0	0
John Beale	270	0	0

LONDON.—For alteration and additions to No. 37, Cleveland-square. Mr. W. Jacomb Gibbon, architect, Great James street:—

Wilkinson & Co.	£630	0	0
Chapman	625	0	0
Rayment & Son	549	0	0
Gibbin & Son	535	0	0
Nunn (accepted)	475	0	0

LONDON.—For alterations and additions to No. 44, Cleveland-square. Mr. W. Jacomb Gibbon, architect:—

Hickinbotham	£655	0	0
Chapman	649	0	0
Wilkinson & Co.	555	0	0
Nunn	544	0	9
Gibbin & Son (accepted)	525	0	0

LONDON.—For the erection of iron staircase from the Victoria Embankment to the Charing Cross footbridge, for the Metropolitan Board of Works. Sir J. W. Bazalgette, engineer:—

J. Mowlem & Co.	£1,519	0	0
Newton Chambers & Co.	1,323	0	0
Gardiner, Anderson, & Clark	1,330	0	0
John Jeffreys	1,194	0	0
F. Bird & Co.*	1,150	0	0
Charleston Foundry Co.†	796	12	0

* Accepted. † Withdrawn.

NEWCASTLE-ON TYNE.—For additional farm buildings, &c., for the Visiting Justices to the City Lunatic Asylum. Quantities, &c., by the architect, Mr. Arthur B. Plummer:—
Walter Scott, Newcastle (accepted)... £884 0 0

NEWPORT (Mon.).—For six shop-fronts and other alterations at Bolton-terrace, Newport, for Mr. C. Pearce:—
John Linton, Newport £400 0 0
[No competition.]

NEWPORT (Mon.)—For the erection of new Children's Jubilee Ward and additions to the Newport (Mon.) Infirmary. Messrs. W. G. Habershon & Fawckner, architects:—

	New children's Jubilee Ward.			Additions to Infirmary.
J. Goldsworthy, Newport	£1,850	0	0	£85
B. C. Jones & Co., Gloucester	1,784	0	0	598
G. Wilkins, Newport	1,698	10	0	442
Inwood, Malvern	1,550	0	0	370
C. Miles, Newport	1,537	0	0	494
Wm. Price, Newport	1,491	0	0	497
Blackburn, Newport	1,485	0	0	465
Gradwell, Barrow-in-Furness	1,459	0	0	487
Linton, Newport	1,425	0	0	470

NORTH KENSINGTON.—For the erection of a parish hall for the Parish of Christ Church. Messrs. J. E. K. & J. P. Cutts, architects:—

Chamberlen Bros.	£1,329	0	0
J. Tyerman	1,120	0	0
J. Holloway	1,100	0	0
Lathey Bros. (accepted)	1,090	0	0

NORWOOD.—For construction of swimming-baths, Upper Norwood, for the Norwood Public Hall Company. Mr. J. Watt, architect. Quantities supplied by Messrs. T. Marcus Houghton and Robert Henry Kerr:—

H. L. Holloway	£1,186	0	0
J. Smith & Sons	1,145	0	0
Puzey & Lumley, Newman-street, Oxford-street (accepted)	1,002	0	0
Cole	980	0	0

PENGE.—For the enlargement of the Melvin-road School, Penge (Greenwich AO), by 400 places, for the School Board for London. Mr. T. J. Bailey, architect:—

T. Simpson	£3,744	0	0
G. J. Kick	3,391	4	5
J. & C. Bowyer	3,206	0	0
C. Wall	3,018	0	0
W. Johnson*	2,960	0	0

* Recommended by the Works Committee for acceptance, subject to the usual conditions.

PIMLICO. — For alterations and additions to the Windsor Castle Hotel, Wilton-road, Pimlico, for Mr. S. Raven. Mr. H. I. Newton, architect, 17, Queen Anne's Gate, Westminster:—

Walker	£1,770	0	0
Jackson & Todd	1,570	0	0
Godden	1,565	0	0
Burman & Sons	1,545	0	0
Havlock	1,530	0	0
Smith, Belgrave-square (accepted)	1,349	0	0

PUTNEY.—For a new road called "Chelverton-road," with sewer, connexions, manholes, gullies, &c., for the British Land Company, Limited, on their Putney Station Estate. Mr. Henry B. Michell, surveyor:—

Killingback, Camden Town	£1,075	0	0
Nowell & Robson, Kensington	1,056	0	0
Dunmore, Hornsey	914	0	0
Harris, Camberwell	909	0	0
Bloomfield, Tottenham	888	0	0
Jackson, Leyton	876	0	0
Pizzey, Hornsey	865	0	0
Wilson, Walthamstow	844	0	0
Peill, Bromley, Kent (accepted)	844	0	0

READING.—For the erection of new cow-house, stores, &c., Whitley Rise. Mr. C. B. Stevens:—

G. S. Lewis, Castle-street, Reading* [No competition.]	£200	0	0

* Accepted.

READING.—For rebuilding stores and cart-sheds for Mr. C. Marchant:—

G. S. Lewis, Castle-street, Reading* [No competition.]	£110	0	0

* Accepted.

SAWBRIDGEWORTH. — For the erection of new barley kilns, &c., at Sawbridgeworth, Herts, for Messrs. Barnard & Co. Messrs. Davison, Inskipp, & Mackenzie, architects, 5, Bedford-row. Quantities by Messrs. R. L. Curtis & Sons:—

F. Hitch, Ware	£2,247	0	0
J. Morter, Stratford	2,175	0	0
Burton & Son, Sawbridgeworth	2,174	0	0
T. W. Smith & Son, Islington	2,148	0	0
J. & A. Brown, Braintree	2,090	0	0

TEDDINGTON.—For a house for Mr. C. T. Dyne-Burchell. Messrs. J. E. K. & J. P. Cutts, architects:—

J. Tyerman	£2,609	0	0
J. Holloway	2,550	0	0
J. F. Collinson	2,498	0	0
Lathey Bros.	2,490	0	0
W. Hickinbotham	2,470	0	0
J. Pillar	2,427	0	0

UPPER CLAPTON. — For stables, &c., Upper Clapton. Mr. J. Hamilton, architect:—

Godfrey & Son, Clapton	£287	0	0
Exton & Burton, Kingsland	255	0	0
Bowden & Son, Walthamstow	250	0	0
W. Shurmur, Lower Clapton	243	0	0

WOKING.—For new memorial house for six Indian students at the Oriental Institute, Woking. Mr. William I. Chambers, architect:—

George Shears, Maybury (accepted)	£990	0	0

WOKINGHAM (Berks).—For the erection of two houses, Langborough-road, for Mrs. J. Taylor:—

G. S. Lewis, Castle-street, Reading* [No competition.]	£400	0	0

* Accepted.

Duke of York P.H., Myrtle-street.—In the list of tenders for works here published last week (p. 889), for "J. Weale, £1,898," read "J. Beale (accepted), £1,598."

*** SPECIAL NOTICE.—Lists of Tenders frequently reach us too late for insertion. They should be delivered at our office, 46, Catherine-street, W.C., not later than 12 Noon on THURSDAYS.

PUBLISHER'S NOTICES.

Registered Telegraphic Address, "THE BUILDER, LONDON."

CHARGES FOR ADVERTISEMENTS.

SITUATIONS VACANT, PARTNERSHIPS, APPRENTICESHIPS TRADE, AND GENERAL ADVERTISEMENTS.

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DOUGLAS FOURDRINIER, Publisher,
Addressed to No. 46, Catherine-street, W.C.

Advertisements for the current week's issue must reach the Office before THREE o'clock p.m. on THURSDAY.

SPECIAL.—ALTERATIONS IN STANDING ADVERTISEMENTS or ORDERS TO DISCONTINUE same, must reach the Office before TEN o'clock on WEDNESDAY mornings.

The Publisher cannot be responsible for DRAWINGS TESTIMONIALS, &c. left at the Office in reply to Advertisements, and strongly recommends that of the latter COPIES ONLY should be sent.

PERSONS Advertising in "The Builder," may have *Replies addressed to the Office, 46, Catherine-street, Covent Garden, W.C. free of charge.* Letters will be forwarded if addressed envelopes are sent, together with sufficient stamps to cover the postage.

AN EDITION Printed on THIN PAPER, for FOREIGN CIRCULATION, is issued every week.

MAP OF LONDON, showing Boundaries of Surveyors Districts. The four Sheets, into which the Map is divided (issued with the numbers of January 1st, 8th, 15th, and 22nd), if sent to the Office direct, or through any Newsagent, can be MOUNTED on the following Terms, viz.:—

On Cloth (Rollers) and varnished, 3s. 6d.
" (Strainer) " 3s. 6d.

N.B.—In the case of "Strainers," if packed for rail or carrier 1s. 3d. extra.

*** Omissions discovered since publication will be corrected before mounting.

TERMS OF SUBSCRIPTION.

"THE BUILDER" is supplied DIRECT from the Office to residents in any part of the United Kingdom at the rate of 18s. per annum PREPAID. To all parts of Europe, America, Australia, and New Zealand, 26s. per annum. To India, China, Ceylon, &c. 30s. per annum. Remittances payable to DOUGLAS FOURDRINIER, Publisher, No. 46, Catherine-street, W.C.

FIRE BRICKS.

BEST STOURBRIDGE FIRE BRICKS, and Cement Fire Clay, Gas Retorts, Muffles, &c. Fire Bricks and Blocks for the Highest Heats, for Iron Blast Furnaces, Forge, Rolling, Puddling, and Steel Furnaces, Flint Glass Furnaces, Roasting and Refining Furnaces, Chemical Works, Coke Ovens, &c. Boiler Seating Blocks, Flue Covers, Locomotive Bricks, Tuyeres, Steel Runners, Grate Backs. Special Sizes and Shapes made to Engineers' Drawings. Prices quoted to any Port or Railway Station.

London Agents:—
R. CULL & SON, *Palmerston-buildings, E.C.*

GLAZED BRICKS.

OATES & GREEN, HALIFAX.

GLAZED BRICKS (White and Coloured), Special Salt-glazed Bricks, Sanitary Tubes, Glazed Earthenware Sinks, Cattle, Sheep, and Pig Troughs, Horse Mangers, Patent Automatic Trough Closet, Patent Flush Tank. Ventilating Bricks, Patent Ventilating Gullies and Traps, Patent Chimney Pots for Down Draughts. Six Prize Medals. Copies of Testimonials sent if required.

London Agents:—
R. CULL & SON, Palmerston-buildings, E.C.

BLUE BRICKS.

THE KETLEY BRICK COMPANY, KINGSWINFORD Staffordshire. Manufacturers of Blue Bricks.

London Agents:—
R. CULL & SON, Palmerston-buildings, E.C.

DRAIN PIPES.

Lime, Cement, Bricks, Slates, Laths, Hair, Plaster, Wall Copings, Channel Bricks, Blue and Red Ridges, Red Plain Tiles and Pan Tiles, Closet Pans and Traps. Bends, Junctions, &c. all sizes. Chimney-Pots, Red and White. PRICES on APPLICATION.

R. CULL & SON'S Stores, Railway Arches, London-street, Bethnal Green Station, E.

Chief Office:—72, Palmerston-buildings, Old Broad-street, E.C.

TO CORRESPONDENTS.

Registered Telegraphic Address, "THE BUILDER, LONDON."

R. F.—H. H.—O. M. W. S.—K. H.—H. R. D.—F. G. H. (amount not sent).—T. G. (too late this week).—C. H. (too late).—W. L. & Son (too late).—M. H. J. (too late).—H. S. T. (your letter appears to refer to some communication which arrived too late for last week's paper. Please re-state particulars).—J. H. (too late).—W. H. W. (ditto).—J. T. (not received).

All statements of facts, lists of tenders, &c., must be accompanied by the name and address of the sender, not necessarily for publication.

We are compelled to decline pointing out books and giving addresses.

NOTE.—The responsibility of signed articles, and papers read public meetings, rests, of course, with the authors.

We cannot undertake to return rejected communications.

Letters or communications (beyond mere news-items) which have been duplicated for other Journals, are NOT DESIRED.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; all communications relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and not to the Editor.

Best Bath Stone.

CORSHAM DOWN. | FARLEIGH DOWN.
BOX GROUND. | COMBE DOWN.
WESTWOOD GROUND. | STOKE GROUND.

RANDELL, SAUNDERS, & CO., LD.,
CORSHAM, WILTS.

Bath Stone.

Pictor's Monks' Park. Combe Down.
Corsham Down. Stoke Ground.
Box Ground. Winsley Ground.
Farleigh Down. West Wood.
PICTOR & SONS, Box, Wilts. [ADVT.

Doulting Freestone.

THE CHELYNCH STONE. The stone from these quarries is known as the "Weather Beds," and is of a very crystalline nature, and undoubtedly one of the most durable stones in England.

THE BRAMBLEDITCH STONE. Is of the same crystalline nature as the Chelynch Stone, but finer in texture, and more suitable for fine moulded work.

HAM HILL STONE.

Greater facilities have been provided for working these quarries, and the stone can be supplied in large quantities at short notice.

Prices, and every information given, on application to CHARLES TRASK & SONS, Norton-sub-Hamdon, near Ilminster, Somerset.

London Agent — Mr. E. WILLIAMS, 16, Craven-street, Strand, W.C. [ADVT.

Doulting Free Stone / **HAM HILL STONE,** / **BLUE LIAS LIME (Ground or Lump),** For prices, &c., address S. & J. STAPLE, Quarry Owners, Stone and Lime Merchants, Stoke-under-Ham, Ilminster. [ADVT.

Asphalte.—The Seyssel and Metallic Lava Asphalte Company (Mr. H. Glenn), Office, 38, Poultry, E.C.—The best and cheapest materials for damp courses, railway arches, warehouse floors, flat roofs, stables, cow-sheds, and milk-rooms, granaries, tun-rooms, and terraces. [ADVT.

Asphalte.
Seyssel, Patent Metallic Lava, and White Asphaltes.
M. STODART & CO.
Office:
No. 90, Cannon-street, E.C. [ADVT.

DRAIN TESTING.

For convenience and efficiency in making what is known as the Scent or Peppermint Test, the Banner Sanitation Company have introduced a new appliance,

THE

BANNER PATENT DRAIN GRENADE OR DRAIN FERRET.

This Appliance is made, preferably, of thin Glass, and is charged with powerful pungent and volatile chemicals, the smell caused by which is not likely to be mistaken, nor distributed in such a way as to either mislead or render the test worthless through mismanagement or the careless handling of the necessary chemicals.

When one of the "Grenades" is dropped down any pipe it breaks, and the effect produced by its contents is distributed only as intended.

One "Grenade" is often sufficient for testing an ordinary house drain.

The Banner Patent Drain Grenades or Drain Ferrets can be obtained in Boxes of One Dozen each from the Banner Sanitation Company, their Agents, and most Dealers in Sanitary Goods.

PRICES.—**With Peppermint Filling** ..... 5/- per box of one doz. **With Assafœtida Filling** ..... 5/6 per box of one doz.
With Compound Filling, extra strong ..... 6/- per box of one doz. Soluble Gelatine "Grenades," with same fillings, 2/- per doz. extra

BANNER SANITATION COMPANY,

WESSEX HOUSE, NORTHUMBERLAND AVENUE, CHARING CROSS, LONDON, W.C.
(Opposite entrance to Hôtel Métropole.) Telegraphic Address:—"Banners, London."